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Notes on Three Clutches of Eggs of the Eastern Box Turtle, *Terrapene carolina*

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Abstract

Three clutches of eggs from the eastern box turtle, *Terrapene carolina carolina*, had mean egg wet mass ranging from 8.90 to 9.59 g, mean egg width ranging from 21 to 22 mm, mean egg length ranging from 32 to 34 mm. Mean relative clutch mass for these three clutches is 0.105. Clutch size ranged from 5 to 9 eggs, with the latter the largest clutch reported for the subspecies from Illinois. Eight hatchlings averaged 7.41 g in wet mass (range = 7.18–7.83 g, SD = 0.24 g), 28 mm in carapacial length (range = 26–29 mm, SD = 0.89 mm), and 29 mm in carapacial length (range = 28–31 mm, SD = 0.92 mm). Incubation period averaged 52 days (range = 51–53 days, SD = 0.76 days). Preliminary comparison of clutch sizes from Illinois and Florida supports previously published suggestions that clutch size increases with increasing latitude. Comparison of egg size parameters between turtles from Illinois and Florida suggests that turtles from the latter state lay larger eggs than do turtles from Illinois, providing preliminary support for a clutch-size/egg-size tradeoff in this species.

Introduction

Remarkably little is known about the reproduction of the eastern box turtle, *Terrapene carolina carolina*, in Illinois. Smith (1961, p. 136) summarized data presented by Cahn (1937) as “. . . clutch size as three to eight eggs, each egg measuring about 33 × 19.5 mm.” The situation is not much better in other areas of the range of the species. For instance, Iverson (1992) could find no published reports on reproduction in *T. carolina* that would allow calculation of relative clutch mass or other parameters dependent on knowing the wet mass of the female. Therefore, I present data on three clutches from a single location in west-central Illinois. One of these clutches contained nine eggs, making it the largest clutch yet reported for the species in Illinois.

Materials and Methods

I collected the three specimens of *Terrapene carolina carolina* as they attempted to cross Graham's Hollow Road, 4.1 km W of Grafton, Jersey County, Illinois. For these three specimens, I induced oviposition with oxytocin (Ewert and Legler, 1978). I determined egg wet mass (to 0.01 g), measured egg length and width (to 1 mm) with vernier calipers,

uniquely numbered each egg with carbon ink, and half buried each egg in perlite incubation medium (85 ml deionized water + 150 g perlite) which had been previously placed in Tucker brand modular storage boxes (dimensions = 32.5 × 19.38 × 10.0 cm). Eggs did not touch each other. The clutches were incubated separately. After placing a layer of aluminum foil under the box lid to further retard moisture loss, I weighed the entire box and contents so that boxes could be rehydrated to bring the weights back to the original weight. Pip date is used to determine incubation period (Gutzke et al., 1984). Once the first egg of each clutch pipped, I placed a bottomless waxed paper cup over each egg so that the hatchling could be matched with a particular egg (Janzen, 1993). I determined hatchling wet mass (to 0.01 g), and measured carapacial length and width (to 1 mm) of each hatchling with vernier calipers. I did not control incubation temperature. I recorded morning temperatures along with minimum and maximum temperatures daily throughout incubation. Ambient temperature did not exceed 34°C nor fall below 24°C with a mean diurnal variation of 7°C. Mean morning temperature was 28.7°C. I used the SAS System computer programs (SAS Institute, 1988) for statistical manipulation.

Table 1. Means of measurements of eggs and hatchlings for three clutches of *Terrapene carolina* eggs from west-central Illinois. The mean relative clutch mass for the three females was 0.105.

Clutch size	Eggs			Hatchlings				Females	
	Wet mass (g)	Width (mm)	Length (mm)	Wet mass (g)	Carapace width (mm)	Carapace length (mm)	N	Plastron length (mm)	Wet mass (g)
9	8.90	22	32	7.41	28	29	8	143	850
6	9.59	22	33	—	—	—	0	142	550
5	9.58	21	34	—	—	—	0	140	550

Results and Discussion

Means for weights and measurements recorded for the three clutches from Illinois *Terrapene c. carolina* are listed in Table 1 along with mean relative clutch mass (Iverson and Smith, 1993). One of these clutches contained nine eggs. Cahn (1937) reported clutches as large as eight from Illinois. Smith (1961) and Ernst and Barbour (1972 and 1989) also report a maximum clutch size of eight eggs for *T. c. carolina*. Carr (1952) dissected nine eggs from a specimen of *T. c. bauri*. The largest clutch reported for the species is 11 from a Connecticut specimen (Warner, 1982).

Only one of the three clutches of eggs from the Illinois *T. carolina* developed, resulting in eight hatchlings from the clutch of nine eggs. These eight hatchlings averaged 7.41 g in wet mass (range = 7.18–7.83 g, SD = 0.24), 28 mm in carapacial length (range = 26–29 mm, SD = 0.89), and 29 mm in carapacial length (range = 28–31, SD = 0.92). Incubation period averaged 52 days (range = 51–53 days, SD = 0.76 days).

The range of *T. carolina* in the United States is quite extensive (see Carr, 1952; Milstead, 1969; Ernst and Barbour, 1972; Conant and Collins, 1991; and Tucker and Hatcher, 1994 for maps). In the central United States, populations in Illinois are at the northern edge of the range of the species. Turtles from Illinois are at roughly the same longitude as those at the southern border of the range in the Gulf Coastal states (i.e., *T. c. major*). Correlations between a number of life history traits such as clutch size, body size, and egg size and latitude have been documented for certain turtle species, particularly the painted turtle, *Chrysemys picta* (e.g., Christiansen and Moll, 1973; Moll, 1973; Iverson, 1992; Iverson and Smith, 1993). Fitch (1985) previously noted that a northward increase in clutch size is indicated in *T. carolina*, based on comparison of clutch size for turtles from Washington, D.C. (data from Allard, 1935) and Florida (data from Tucker et al., 1978b). Consequently, comparisons of these same traits between Illinois and Gulf Coast *T. carolina* are appropriate, albeit preliminary.

Because the current study is based on just three turtles and no data have been published for populations between west-central Illinois and Florida along the same longitude, the comparisons that I present are preliminary. However, unadjusted mean clutch size for the Illinois box turtles that I studied (6.67 eggs, $n = 3$) is significantly larger ($F = 35.58$, $p < 0.0001$) than unadjusted mean clutch size for the Gulf

Coast box turtles (2.62 eggs, $n = 13$), when compared by a one-way analysis of variance. The sample sizes ($n = 18$) reported by Tucker et al. (1978b) differ from those reported in the current reanalysis because original raw data could not be located for six of the Gulf Coast box turtles reported by Tucker and Funk (1977). Tucker et al. (1978a) demonstrated that clutch size and plastral length are not correlated ($r = 0.21$, $p > 0.05$), making one-way analysis of variance an appropriate means of comparison (Packard and Boardman, 1988). Furthermore, the mean plastral length (141 mm) for Illinois box turtles does not differ significantly ($F = 1.58$, $p = 0.23$) from mean plastral length (147 mm) of the Gulf Coast sample (Tucker et al., 1978b).

The data that I report are consistent with Fitch's (1985) suggestion that clutch size varies latitudinally in this species. These results are also consistent with the clutch size/egg size tradeoff proposed by Iverson (1992). Mean egg width (22 mm) of Illinois box turtles is significantly ($F = 7.20$, $p < 0.01$) less than mean egg width (23 mm) of Gulf Coast box turtles. Mean egg length (33 mm) for Illinois box turtles is significantly ($F = 90.15$, $p < 0.0001$) less than mean egg length (38 mm) of Gulf Coast box turtles. Mean egg wet mass (9.28 g) for the Illinois box turtles is significantly ($F = 36.25$, $p < 0.0001$) less than mean egg wet mass (11.21 g) of Gulf Coast box turtles.

These data are exactly in accord with the egg-size/clutch-size tradeoff suggested in the model put forth by Iverson (1992). The egg-size/clutch-size tradeoff is demonstrated by the longer and heavier eggs found in the smaller clutches laid by Gulf Coast box turtles as compared to the three Illinois box turtles that I studied. If egg width is constrained by pelvic girdle, then the much lower F value for the comparison of egg widths would be expected where the plastral lengths of the females for the two samples do not differ significantly as is the case here.

Clearly an expanded study of reproduction in this species would be important. The limited data available suggest that clutch size and egg size vary latitudinally in much the same way as they do in the much better known painted turtle. However, body size does not follow the same pattern found in the painted turtle. In that species, body size decreases with decreasing latitude whereas in *T. carolina* it does not. In fact, *T. c. major* is considered by most authors (e.g., Carr, 1952; Ernst and Barbour, 1972) to contain the largest specimens of the species, yet this subspecies has the smallest clutch size.

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Two New Books on the Herpetology of the Coast of Jalisco, Mexico

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Two books appeared in 1994 on the herpetofauna of a section of the Pacific coast of central western Mexico in northern Jalisco. The area covered centers upon the Estación de Biología Chamela (also termed the Reserva de la Biósfera Chamela-Cuixmala), near the town of Chamela. The Station (or Reserve) is maintained by the Instituto de Biología of the Universidad Nacional Autónoma de México, and by the Fundación Ecológica de Cuixmala, and for several decades has been the site of a great deal of study of biodiversity and related subjects. Herpetologically that study began with the unpublished dissertation by Casas-Andreu (1982), which provided a major base from which especially the first book to appear (see following), of present concern, was largely derived. The second book involved replication and augmentation of Casas' work at the Chamela site, since several years of field work were spent there as a basis for a doctoral dissertation.

Most important from the standpoint of potential utility of the books is the fact that the internationally popular resort center at Puerto Vallarta (where "Night of the Iguana" was filmed) is situated only some 120 air km north of Chamela, and in essentially the same biotic area. Thus the potential impact of these two books on the general public is considerable in view of the extensive tourist traffic in the area covered. It is to be hoped that they will be made readily available on the spot, particularly to the residents of and tourists in Puerto Vallarta, where their educational value would be the greatest. They also should be locally available for the scientists and students visiting the Biological Station (or Reserve).

The first of these two books to appear was the one (GC) by García and Ceballos (1994), imprinted April. The second (RB), by Ramírez-Bautista (1994) was imprinted October. Both are paper-backed, with a cover in color, and with numerous illustrations, mostly in color. Their overall sizes are similar, the first 23×16 cm, the second 21.5×16 cm.

Their content is extensively similar, but there are also major differences. For one, GC clearly was directed toward the nonspecialist, RB toward the professional, although both groups could benefit from each book. GC does not deal with subspecies, whereas RB does, although the number of taxa treated is not affected by that difference, inasmuch as no more than one subspecies of any species occurs in the area.

Second, no keys are given in GC, whereas separate ones for amphibians and reptiles are given in RB. Thus in using GC one has to rely on descriptions and illustrations in order to identify unknowns. However, all taxa are illustrated in both books.

Third, all species are illustrated in GC by paintings, although there are photos in addition of the venomous species and of different habitats. In RB, on the contrary, photographs illustrate all species, and there are no habitat photos. The

illustrations in RB are scattered throughout the text in close association with the corresponding species accounts, whereas in GC the paintings are all together in the center of the book.

Fourth, GC is bilingual, Spanish and English, and that accounts for its more numerous pages than in RB (184 vs 127).

Fifth, the individual taxon accounts of GC are shorter, occupying a total of 34 pages, whereas they occupy 65 pages in RB. Each account has sections for description, distribution, habits and habitat. In addition, GC has brief entries in each account for comparison with similar species, and for notation of abundance, economic importance and, where appropriate, survival status.

Sixth, RB has labeled line drawings illustrating the scales and other taxonomically useful features dealt with in the keys and descriptions, of turtles, lizards and snakes. Other line drawings illustrate certain features of anurans used in the key to amphibians. GC has a few somewhat similar drawings in an appendix, but they depict little or no detail.

Seventh, RB has a seven-page glossary. GC has none.

Eighth, GC has an index to common and scientific names, although species names are entered only under their genus. RB has no index.

Ninth, RB acknowledges interaction with far more people, from far more diverse regions, than GC; only three are duplicated. This difference reflects the preparation of RB in the context of a doctoral dissertation. GC was a product of the interest and extensive financial and other support provided unilaterally by the Fundación Ecológica de Cuixmala. Both were supported by the Instituto de Biología, but RB benefitted exclusively from that source.

Tenth, GC has a considerably more detailed description of the coastal environment, with eight color photos of different vegetative habitats, than RB, which has no habitat photos. In that work, the reader is referred to other publications providing thorough descriptions of habitat types.

Eleventh, RB discusses venomous snakes, precautions to avoid them, venomous snakebite and treatment thereof, rather extensively (five pages), whereas GC has less than two pages of text and nothing on precautions or treatment of snakebite, although it does have four color photos in a special section on venomous reptiles.

Twelfth, RB has nine bar diagrams comparing the number of species of herps of different groups with each other and with different types of habits, modes of reproduction and preferred habitats. GC gives much the same information in tabular form, as does RB also.

Numerous other differences exist, but they are relatively

minor. Indeed, otherwise the similarities of the two works are surprisingly extensive. That the list of species and their names is much the same in each would be expected as a matter of course, and is true, although GC includes three (of a total of 85) not found in RB: *Anolis schmidtii*, *Sceloporus pyrocephalus* and *Coniophanes lateritius*. These three presumably were admitted by GC on the basis of their appearance in Casas-Andreu's dissertation (1982). RB was more critical, rejecting Casas' (op. cit.) identification of material from the vicinity of Chamela as *A. schmidtii* (described from Colima), although that question is yet to be resolved (along with the question of the supposedly undescribed species of *Anolis* also recorded by Casas (op. cit.) from the Chamela area). RB eliminated the other two on the basis of no actual records from that area. Indeed, it now appears that he was quite correct relative to *S. pyrocephalus*, which is highly unlikely to occur in the area covered by these books, being limited farther south. However, *C. lateritius* undoubtedly does occur, having been recorded from Puerto Vallarta (as noted by Casas, op. cit.) and southward, although not yet in the Chamela area.

Pelamis is assigned to the Elapidae in GC, to the Hydrophiidae (using the former spelling Hydropheidae) in RB.

It is likely that in spite of the extensive field work completed in the Chamela area, especially by Casas-Andreu and Ramírez-Bautista but also by others in a more incidental way, several species of herps occur there but have not yet been recorded. In addition to *C. lateritius*, previously mentioned, one or more species should occur of *Sceloporus*, *Leptodeira* and other snakes and lizards. A special enigma is the complete absence of any records of *Trachemys scripta* from anywhere in Jalisco, Colima or Michoacán, although numerous records exist to both the north (Nayarit) and the south (Guerrero). Very likely it doesn't occur in the area, but if not the possibility should be considered that a complex of species may well be involved in what has customarily been treated as a single species. Future study is much to be desired on these fundamental problems of the extent of herpetodiversity in the Chamela area.

Both books devote considerable space to discussions of economic importance, the survival status of each species, abundance, feeding categories, activity categories, reproductive categories, macrohabitat, etc., much summarized in several tables. RB has a couple of tables noting the extent of endemism occurring among the species of the area that are endemic to Mexico, and GC has a brief summary of taxonomic changes compared with Casas (1982).

A few typographical and other trivial errors occur in each book, but they are inconsequential and not disturbingly numerous.

In summary, each book has its own distinctive strengths, and which would be right for any given reader depends entirely upon that person's needs and desires. For some, both books would be desirable. Inasmuch as nothing synoptic has hitherto been published on the herpetofauna of the area concerned, all three authors have made a highly significant contribution to recorded knowledge and to the dissemination thereof. It must be stated, however, that since RB was based largely on the author's extensive original research and field work over a span of several years, it must be regarded as more thorough, critical and accurate than GC, based more extensively on Casas-Andreu (1982) and on much less original research and field work.

The García-Ceballos book can be obtained from Fundación Ecológica de Cuixmala, A.C., c/o Laboratorio de Ecología de Mamíferos, Centro de Ecología, UNAM, Apartado Postal 70-275, México, Distrito Federal, 04510 México, at 50 pesos each, plus postage.

The Ramírez-Bautista book may be ordered from Coordinación de Bibliotecas, Instituto de Biología, UNAM, Apartado Postal 70-233, México, Distrito Federal, 04510 México, at \$25.00 each, plus postage (\$4.00 air, \$2.00 surface). It may also be obtained postage paid directly from the author for \$22.00 each, addressed at the Instituto de Biología.

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I am much indebted to my faithful friend, colleague and former student, Dr. Louis J. Guillette, Jr., for a copy of GC inscribed personally by Dr. Andrés García; to Dr. Aurelio Ramírez-Bautista for a copy of RB, and for dedication of his book jointly to my former colleague Dr. Rafael Martín del Campo y Sánchez (now deceased) and to me (a much appreciated association); to Dr. Oscar Flores Villela for pertinent reference material; and to Dr. Gustavo Casas-Andreu for copies of his seminal studies on the herpetofauna of Mexico.

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A Review of the Distribution and Life History of the Wood Frog, *Rana sylvatica* (Anura: Ranidae), in North-central Arkansas

Stanley E. Trauth¹, Michael E. Cartwright², J. D. Wilhide¹ and David H. Jamieson³

Abstract

We investigated the distribution and life history characteristics of the wood frog, *Rana sylvatica*, in north-central Arkansas over an eight-year period. Two new county records were established. Breeding activity was monitored in selected ponds located within the Sylamore Ranger District of the Ozark National Forest. Breeding wood frogs typically used newly-constructed, wildlife habitat improvement ponds created by the Arkansas Game and Fish Commission and the U. S. Forest Service. Initial winter breeding migrations to ponds consistently occurred during a two-week interval (late January through early February). The breeding season normally spanned about 3–4 weeks. Reproductive characteristics of these populations were mostly similar to those reported elsewhere in this species' range. Because wood frogs exhibit large breeding aggregates at nearly all of the monitored ponds (on both private and public land), we believe that there is no immediate threat to survival of wood frogs in this region.

Introduction

The wood frog, *Rana sylvatica*, is a medium-sized anuran species that is distributed across much of northern North America. Despite this northern affinity, the range of the wood frog dips southward into mountainous regions and their adjacent lowlands in parts of the eastern and south-central United States. Populations within these southernmost extremes of the range are discontinuous forming isolated enclaves that extend, for example, into east-central Alabama in the south and into northern Arkansas in the southwest (Dowling, 1956; Martof, 1970; Davis and Folkerts, 1986; Conant and Collins, 1991). This species' most striking morphological feature, undoubtedly, is its distinctive facial mask, a dark patch of skin which lies above a prominent white-lined upper lip; the mask extends from the tip of the snout, runs through the eye, and finally terminates at a point several mm posterior to the tympanum. Wood frogs are recognized as being the only North American ranid species to venture north of the Arctic Circle.

Research on the biology of wood frogs is extensive and has rapidly increased in recent years. Much of the current ecological work has focused on such topics as acid sensitivity of eggs and larvae (see reviews and related literature in Corn et al., 1989; Corn and Vertucci, 1992; Karns, 1992; Sadinski and Dunson, 1992; Grant and Licht, 1993), geographic variation in reproduction (Berven, 1982, 1988; Berven and Gill, 1983; Davis and Folkerts, 1986; Corn and Livo, 1989; Trauth et al., 1989a; Camp et al., 1990), and genetic diversity (Berven and Grudzien, 1991; Zeyl, 1993). Because of the species' wide range, general tolerance of cold temperatures and acidic conditions, and relatively high hatching and survival rates, wood frogs are easily becoming one of the most important native North American anuran species for experimental research (e.g., see Petranksa et al., 1994). Utilization of wood frogs in the design of aquatic ecotoxicological research may prove to

be quite productive in the future (see related discussion in Rowe and Dunson, 1994).

Although wood frogs were discovered in Arkansas over 60 years ago (Black, 1933), only a few published accounts (other than new county records) have pertained to or documented

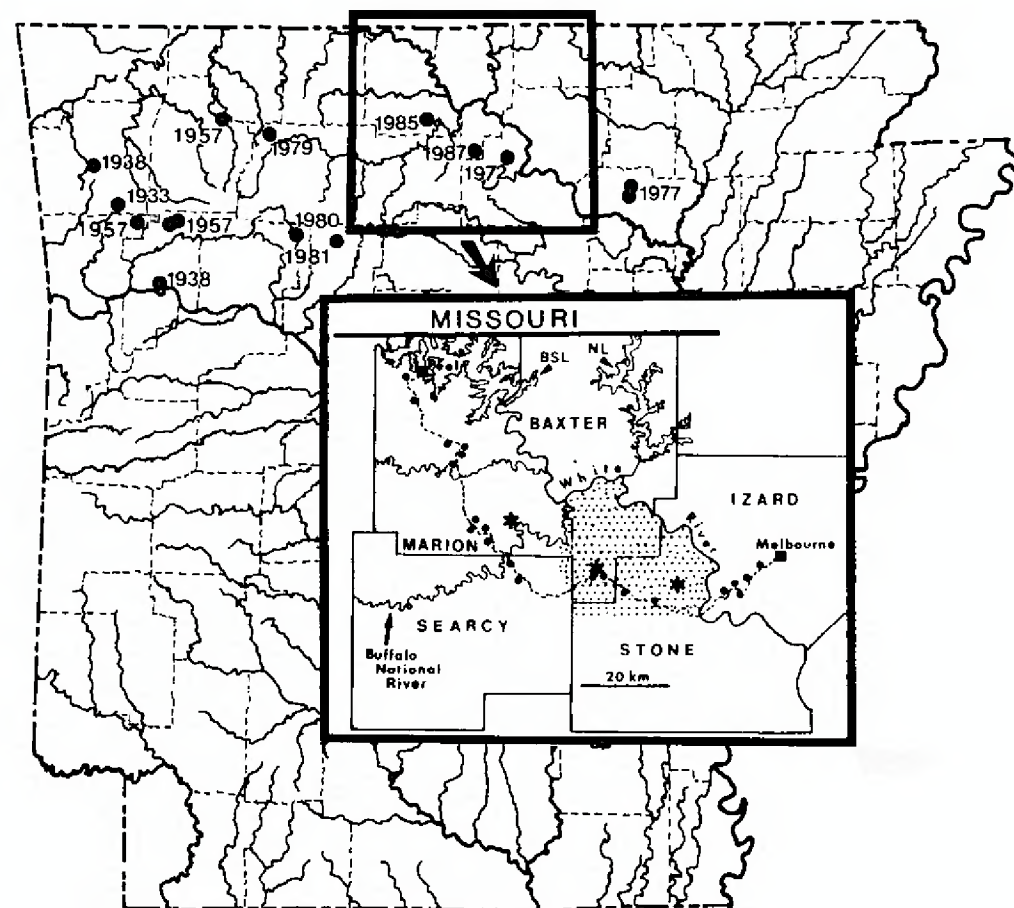


Figure 1. Map of Arkansas showing published county records of *Rana sylvatica* in Arkansas (solid circles as designated by year) and inset of five counties. In inset, a portion of State Highways 9 and 14 from Melbourne (Izard County) to Peel (Marion County) is shown by dashed line; solid dots along highways indicate wood frog breeding sites (see text for explanation). Asterisks represent published county records. BSL = Bull Shoals Lake; NL = Norfolk Lake. Stippled region of inset approximates the boundaries of the Sylamore Ranger District, Ozark National Forest.

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aspects of the biology of Arkansas populations (e.g., Trauth et al., 1989a). In the present study we summarize field survey information as well as provide general distributional and life history data from selected Arkansas populations of *R. sylvatica* monitored over the past eight years. Also, our intent is to provide a preliminary status report on populations within the Sylamore Ranger District (SRD) of the Ozark National Forest (ONF), of north-central Arkansas. Lastly, we document new localities for the species in Arkansas at the southwesternmost limit of its range.

Distribution and Habitat

The range of *Rana sylvatica* in Arkansas is delineated in Figure 1 with the use of published voucher records. These include the following counties (county followed by chronological citation): Washington (Black, 1933), Franklin (Black, 1938), Crawford (Dowling, 1957), Franklin (Dowling, 1957), Madison (Dowling, 1957), Stone (Schuier et al., 1972), Independence (Robison and Douglas, 1977), Newton (Plummer and Godwin, 1979), Johnson (Turnipseed, 1980), Pope (Turnipseed, 1981), Marion (Cline and Tumblison, 1985), and Baxter (Trauth et al., 1987). The present study adds two new counties (Izard and Searcy; see Figure 1) to this list. Except for the Franklin County locality within the Arkansas River

Valley, the others occur within either the Boston Mountains or the southern extremities of the Springfield and Salem plateaus (lying to the north of the Boston Mountains); all three are physiographic subdivisions of the Ozark Mountains ecoregion (Smith et al., 1984). Wood frogs were reported from the SRD over 20 years ago (Schuier et al., 1972). This rough terrain (Figure 2) of around 170,000 acres is located in parts of four counties, namely northern Stone County, southern Baxter County, and small portions of Marion and Searcy counties (see inset in Figure 1). The northern area of the SRD is in the southern region of the Salem Plateau; the southern area of the SRD is in the northern portion of the Springfield Plateau. The entire region of SRD is characterized by a karst topography with numerous caves and springs; in addition, high bluffs of eroded limestone, dolomite, and sandstone fringe the rivers (White and Buffalo) and major creeks. Often extending away from these bluffs are expansive cedar glades which eventually lead into deeply-cut ridges dominated by either southern yellow pine or oak/hickory forests (Figure 2B). Wood frogs have been found in a variety of these habitats within the SRD (e.g., near the mouth of caves and inside bluff crevices) following the breeding season.

Ponds and Breeding Season

We began a long-term investigation of wood frog populations in selected ponds in the SRD in 1987 after the discovery of breeding colonies in Baxter County (Trauth et al., 1987). A total of 99 permanent ponds was monitored during the late winter. All ponds were located within SRD with the exception of one which was located a few miles south of the boundary in Stone County. Sixty-four of the ponds were located in Stone County, 34 in Baxter County, and one in Searcy County. Six of these ponds were initially visited in 1982, and all six were used as wood frog breeding sites that year.

Seventeen percent of the monitored ponds were located on private land (PL) with the remainder (83%) found on national forest (NF) land. Ponds found on NF land were constructed by the Arkansas Game and Fish Commission (AGFC) and the U. S. Forest Service (USFS) as wildlife habitat improvement projects designed to provide permanent water sources for deer and turkey. Ponds were constructed primarily on dry ridge tops near wildlife openings or timber regeneration areas where permanent water sources were deficient. Most of these ponds were constructed after 1975. These wildlife ponds were small in size (around 0.05 ha). Several constructed after 1982 were treated with bentonite in an effort to enhance water retention. Construction costs ranged from \$120 to \$500 per pond.

Following construction, pond levees and the general disturbance area around each pond site were seeded with attractive wildlife plantings (grasses and legumes) and fertilized. NF ponds were located primarily in forested habitat consisting of oak/hickory or mixed shortleaf pine/oak/hickory stands. None of the NF ponds contained fish populations. Most of the PL ponds were estimated to be > 25 years in age. All were located within 50 m of forested habitat. A few of the PL ponds were located in the edge of maintained fields and pastures. None were known to contain fish populations. In

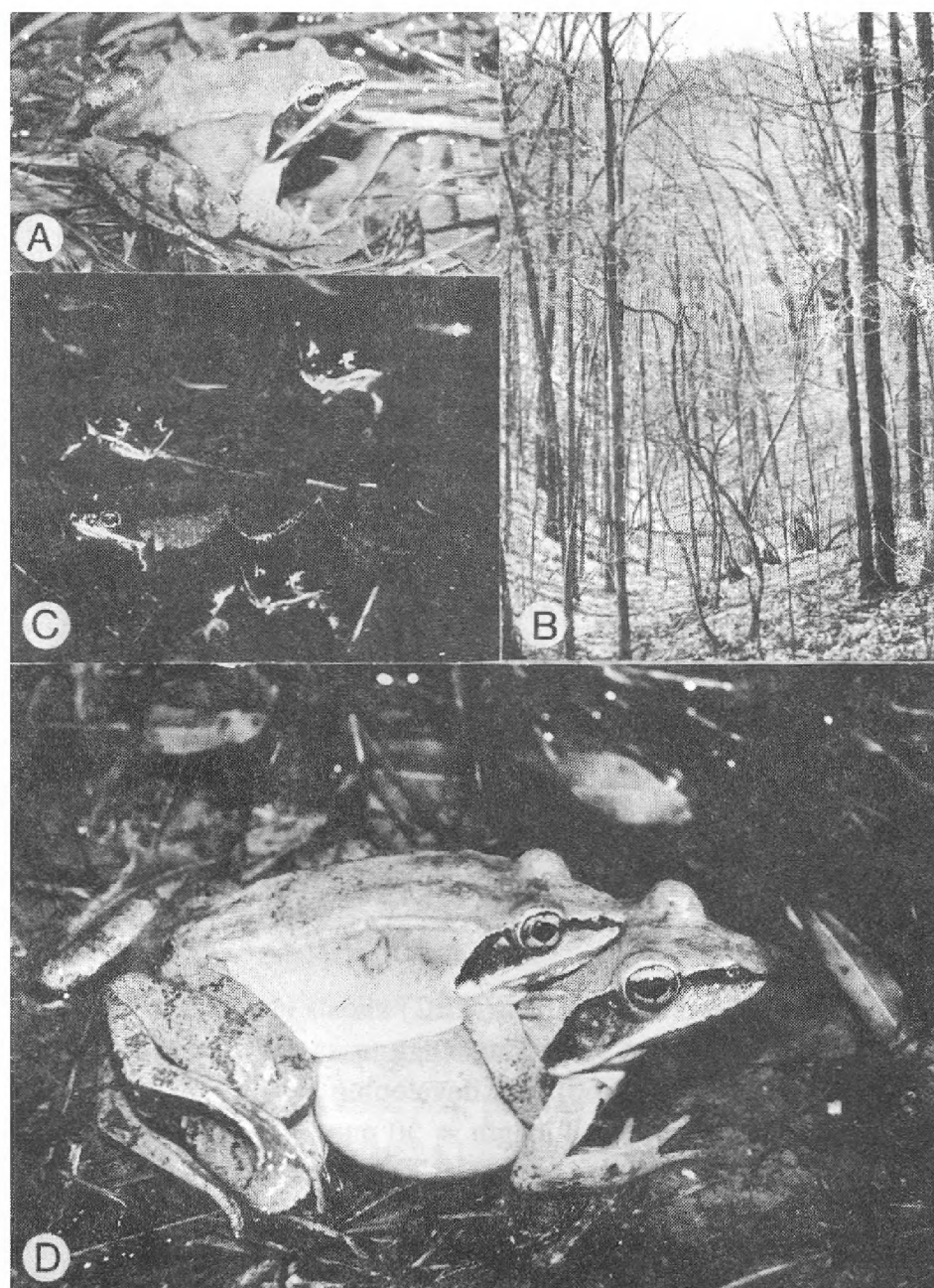


Figure 2. Adult *Rana sylvatica* and a ravine habitat from the Sylamore Ranger District, Ozark National Forest, of north-central Arkansas. A.) Adult male *R. sylvatica* from southern Baxter County. B.) Oak/hickory forest near Fifty-six, Stone County. C.) Calling males in pond along St. Hwy 14 at Blanchard Springs Caverns Road. D.) Amplexant pair of *R. sylvatica* from southern Baxter County.

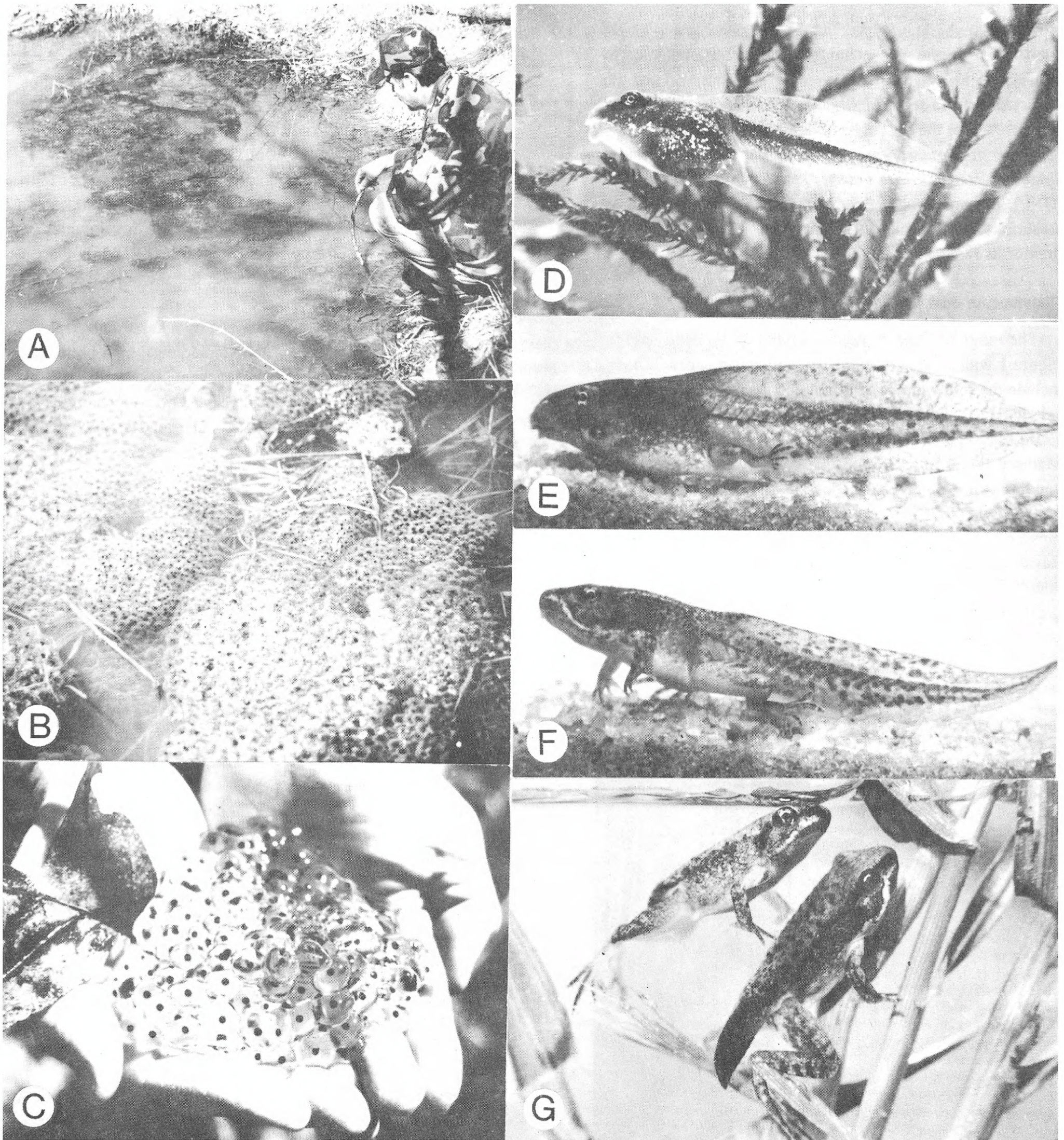


Figure 3. Egg masses and larval stages in *Rana sylvatica* from populations in Stone County, Arkansas. A.) One of us (MEC) kneels beside a shallow, permanent pond containing numerous egg masses. B.) Close-up view of aggregates of egg masses shown in A. C.) Single egg mass attached to leaf petiole. D.) Tadpole (total length = 35 mm). E.) Early metamorphosing tadpole (Gosner stage 38; Gosner, 1960) with developing hind limbs (total length = 43 mm). F.) Late metamorphosing tadpole with well-developed limbs, dorsolateral folds, and jaws (total length = 50 mm). G.) Metamorphosis nearing completion (snout-vent length = 18 mm).

addition, most of these ponds were not accessible for use by cattle as water sources, especially during the wood frog breeding season.

Initial wood frog breeding activity varied between years, but has occurred consistently during a two-week period starting

the last week in January to the first week in February. The migration to either temporary ponds and ditches or the permanent ponds typically coincided with late winter rains. For example, we recorded initial breeding choruses on the following dates: 7 February 1987, 1 February 1988, 25 January 1989, 1 February 1990, 2 February 1991, and 31 January

1992. Breeding activity generally continued sporadically for about 3–4 weeks; the intensity of activity depended largely upon ambient temperature and rainfall. The latest breeding activity was recorded on 4 March 1987, 2 March 1988, 13 March 1989, 1 March 1990, 5 March 1991, and 4 March 1992. In 1988 and 1989, the first evidence of breeding activity in one pond occurred on 2 March and 11 March, respectively, which were the latest dates for the initiation of breeding episodes observed in any ponds monitored during this study. Although breeding behavior was usually linked to precipitation in the form of heavy rain, breeding activity was also noted, in several years, in ponds following snowmelts. Breeding was often interrupted for brief periods of time (several days to up to a week or more) by freezing rain or snowfall which was accompanied by subsequent subfreezing temperatures.

The intensity of breeding activity usually wanes dramatically following the initial (or primary) night for mating during any given year. The prevalence of breeding activity was revealed on 14 February 1992 during an "explosive breeding" night. Two of us (SET and JDW) drove a 155 km stretch of secondary highways that transect the study region (Figure 1) and counted 21 choruses. Most of these breeding sites were cattle ponds located in pastures on the top of ridges; some ponds were near barns and domestic dwellings, whereas others were temporary pools less than 30 cm in depth and only a few m from the highway pavement. Interestingly, one of us (DHJ) drove similar secondary highways near the Missouri state line in several Arkansas counties to the west of the study area on the nights of 10–14 February 1992 and found no wood frog breeding activity.

Reproductive Characteristics

The estimated number of *R. sylvatica* observed in breeding ponds ranged from fewer than 10 to more than 100 individuals. Samples of wood frogs collected during the study period have yielded information on the size of breeding males and females. Males averaged 55.1 mm in snout–vent length (SVL) and ranged from 46.0 to 65.1 mm ($n = 92$), whereas females averaged 65.6 mm SVL and ranged from 59.9 to 76.7 mm ($n = 38$). Furthermore, there is a highly significant difference in the adult body size between the sexes ($t = 1.406$; $df = 129$; $P < 0.001$). These values for adult body size are similar to montane populations of *R. sylvatica* in other parts of its range, although they are around 10% larger than values reported for Missouri wood frogs (Guttman et al., 1991).

Egg mass deposition was typically in communal clusters (Figure 3). The number of egg masses in deposition sites ranged from one to over 300. Occasionally, cold temperatures following the initial breeding period resulted in ice covering communal deposition areas for several days. Egg masses are often laid on top of other masses near the edge in one section of a pond; this egg-laying strategy is presumed to provide a thermal advantage to development of eggs and larvae, especially to those within the innermost region of aggregates (but see Camp et al., 1990). Maximum water depth in breeding ponds at deposition sites was generally < 40 cm.

In an earlier study (Trauth et al., 1989a) we reported on

clutch size in *R. sylvatica* as determined from laid egg masses and from oviductal eggs; clutch size ranged from 510 to 1433 eggs ($\bar{x} = 867.3$; $n = 35$) using the former method and 645 to 1331 ($\bar{x} = 960.0$; $n = 7$) using the latter one. Clutch size in Arkansas populations of wood frogs appears to vary according to adult female body size; this relationship has been observed elsewhere for this species (see Corn and Livo, 1989) and has been reported for other Arkansas ranids [e.g., *R. palustris* (Trauth et al., 1990) and *R. sphenoccephala* (Trauth, 1989)]. However, as pointed out by many anuran biologists, a multitude of factors (environmental, nutritional, genetic, or others) may influence this reproductive trait. Davis and Folkerts (1986) have summarized much of the literature on clutch size in wood frogs.

We also reported previously that egg diameters of oviductal eggs in *R. sylvatica* from Arkansas varied from 1.7 to 2.4 mm ($\bar{x} = 1.92$; $n = 100$); this mean value was intermediate within the range of values summarized by Davis and Folkerts (1986) for localities throughout the geographic range, but was much smaller than the average of 2.8 mm as reported by Camp et al. (1990) for Georgia populations. Diameters of laid eggs with gelatinous envelopes ranged from 7.0 to 12.6 mm ($\bar{x} = 9.6$; $n = 100$) and were smaller than those found in Alabama, Georgia, and Tennessee (Davis and Folkerts, 1986; Camp et al., 1990; Meeks and Nagel, 1973).

The period of time between hatching and metamorphosis in wood frog populations in north-central Arkansas is approximately 90–105 days. Selected larval stages are shown in Figure 3; transforming froglets were observed by late May in most ponds.

Predators and Ecological Associates

During the study numerous instances of predation on adult frogs and on eggs were noted at pond sites. The most common predator based on tracks and feedings signs was the raccoon (*Procyon lotor*). Frogs and their eggs would serve as a high protein food source for mammalian predators during the winter stress period when food sources are in short supply. On 6 March 1987 an eastern garter snake (*Thamnophis s. sirtalis*) was observed on a breeding pond levee with a captured adult wood frog in its mouth. The wood frog was making sharp, high-pitched, squealing sounds as it was being eaten from the rear end. This was a daytime observation. The frog was eventually able to escape the snake and jumped into the pond. Although numerous deer tracks were observed around breeding ponds, there is currently no evidence to suggest that deer consume wood frogs or their eggs.

We have previously reported on several amphibian species that commonly are found in wood frog breeding ponds (Trauth and Cartwright, 1989; Trauth et al., 1989b). There appears to be some competition for ovipositional sites among wood frogs, southern leopard frogs (*Rana utricularia*), and spotted salamanders (*Ambystoma maculatum*) as indicated by the stratigraphic layering of interspecific egg masses often observed in ponds. Others have speculated on the ramifications of communal clustering of egg masses (Walters, 1975; Seale, 1982; Waldman and Ryan, 1983).

Conclusions

Wood frogs utilize a variety of both temporary and permanent ponds in which to breed in the Ozark Mountains of northcentral Arkansas. In our study monitored breeding populations within the SRD of the ONF have showed no discernible decline in numbers, and there appears to be no immediate threat to the survival of current populations. Conservation policies of the AGFC and USFS regarding habitat use and management within

the ONF should continue to benefit wood frogs in the future.

Acknowledgments

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Bull. Chicago Herp. Soc. 30(3):51-52, 1995

An Unusually Large Wood Frog (*Rana sylvatica*) from Door County, Wisconsin

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Vogt (1981) described the wood frog, *Rana sylvatica*, as being medium sized, 3.0–5.0 cm in snout–vent length; Conant and Collins (1991) listed 3.5–7.0 cm as the average size for *R. sylvatica*.

On the evening of 19 July 1993, I encountered an unusually large *R. sylvatica* foraging along the Sunset Bike Trail in Peninsula State Park, Door County, Wisconsin (T31N, R27E, Sec. 18). The frog had a snout-to-vent length measuring 7.9 cm, just 0.4 cm short of the 8.3 cm maximum size record listed by Conant and Collins (1991). Inadequate light conditions prevented me from photographing the frog. I released it at the site of capture.

Sexes can be distinguished in *R. sylvatica* by the webbing on the hind toes. The edge of the webbing between the male's hind toes is straight or convex; that between the female's hind toes is concave (Vogt 1981, Tynning 1990). I was not able to distinguish with certainty the sex of this large individual, as the webbing on the frog's left foot was straight and that on the right foot was concave. However, I suspect that this was a female *R. sylvatica*, since females generally attain larger sizes than do males, and males have not been reported to have concave toe webbing.

This was the second unusually large *R. sylvatica* I encountered in northern Door County in 1993. A large *R. sylvatica* eluded capture at Toft Point Natural Area near Baileys Harbor

(T30N, R28E, Sec. 16) in early June. Other unusually large amphibians have been found in northern Door County and on the adjacent islands. Long (1982) and Lukes (1988) reported

finding “gigantic” American toads, *Bufo americanus*, and I found rather large leopard frogs, *Rana pipiens*, (10.5 cm snout–vent length) in 1987 and 1990.

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Bull. Chicago Herp. Soc. 30(3):52, 1995

Book Review: *Pine Snakes* by William P. Mara 65 pp. 1994. T.F.H. Publications, Neptune City NJ

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This booklet covers the care and breeding of the bullsnake, pine snakes and gopher snakes (genus *Pituophis*). I have kept various pine and gopher snakes and bred bullsnakes. They are among the largest and most impressive snakes native to the United States. They are often bred in captivity, although not in such large numbers as the rat snakes and king snakes. They are wonderful animals and deserve a good booklet of their own.

After reading the booklet, I have come to the following conclusions:

1) The pictures are generally very good with a number that I rate as excellent. However, although they are scattered, the pictures take up a third of the entire book, which I feel is an excessive amount of space.

2) The general quality of the text is variable. The section on hibernation is very good, and the sections on feeding and

cage furnishings range from fair to good. However, the section on the cage itself is poor. It can be summarized in three words—get an aquarium. And it does not even mention a top for the aquarium. The chapter titled “Three Common Diseases,” which covers shedding problems, mites and mouth rot, is almost useless.

3) There are serious errors. For example, a photo caption recommends a temperature of 72°F for northern pine snakes, even though the recommendation is 82°F in the body of the text. And the recommended incubation temperature for eggs is 75°F, which is too low. Babies hatched at 79–83°F are more vigorous (Burger, 1989).

I hate to see a good book damaged—even as much as a dogeared page. But I’ve been writing comments in this booklet and may tear out the pictures to tape them up on a wall. If you want much more than pictures, buy something else.

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HerPET-POURRI

by Ellin Beltz

***Salmonella* implicated in baby's death**

Allen Salzberg sent in a New York State Department of Health Press release which read, "The recent death of an upstate New York newborn [human] from salmonellosis associated with exposure to an iguana has prompted [our department] to re-issue an advisory reminding pet owners to thoroughly wash their hands after handling these exotic pets and similar reptiles, as well as their cages. The latest case involved a pregnant woman with fever and diarrhea who went into preterm labor and subsequently delivered a baby who died 12 hours later on January 1 [1995]. Blood tests from mother and child have since tested positive for *Salmonella poona*, an uncommon strain of the bacteria associated with reptiles. Follow-up samples of the family's pet iguana also were positive for this strain of *Salmonella*. In the past year, [the department] has received reports of 10 laboratory-confirmed and several dozen additional suspected cases of salmonellosis linked to pet iguanas. . . . The Acting State Health Commissioner . . . noted that more than half of the reptile-associated cases reported to the Health Department in the last several years have occurred in infants less than one year old and more than a dozen of the infected children required hospitalization. He added that reptiles have had an increasing popularity as pets in recent years. . . . It is estimated that between 35 and 77 percent of the lizard family . . . harbor the *Salmonella* bacteria in their intestinal tracts." [Also received as a news story from the Middletown, NY *Times Herald Record*, January 20, 1995, from Denise and Frank Andreotti.]

Ohioans warned of *Salmonella* in reptiles

A story in the *Cincinnati Enquirer* [December 11, 1994, from Al Winstel] reports that 18 cases of reptile-related salmonellosis were reported in 1994 by the Ohio Health Department. Thirteen suspected cases were reported, and no one in that state has died from the condition. One of the confirmed cases was that of a 10-month-old girl. The Ohio Department of Health recommended, "confining reptiles in cages or aquariums, avoiding eating or drinking near a cage, minimizing reptile handling, especially for children, washing hands thoroughly, and avoiding washing food and water bowls in kitchen or bathroom sinks." Symptoms of salmonellosis include headaches, stomach pains, diarrhea, nausea and perhaps vomiting.

Two tales of tiny turtles

- A downstate Circuit Court Judge, Gerald Dehner, accepted a motion to dismiss charges against CHS member Tony Janowski, who had been arrested in August with 1,100 turtles and 100 non-venomous snakes in a van on Interstate 55. Public Defender Tom Funk argued "that the reptiles were only protected by the Fish and Aquatic Life Code [of Illinois] if the state could prove the cold-blooded pets were indigenous to Illinois," according to the January 24, 1995, Lincoln and Logan County *Courier* [from Steven Coogan]. The *Courier* describes the initial encounter: "Janowski, who operates Tony's Tiny Turtles, an aquatic wildlife sales business in Chi-

cago, was arrested after Department of Conservation [DOC] police trailed him from an aquatic sale in St. Louis. [DOC Field Supervisor Sgt. Tim] Sickmeyer said of reptile trade as demand and prices continue to skyrocket. 'It's a widespread, multi-million [dollar] industry. . . . The majority of it is legal trade, but there are those who will circumvent the law.' Sickmeyer said Janowski was arrested last year in Cook County for unlawful sale of aquatic life, but was found not guilty."

- The *Seattle Times* [January 4, 1995, from Lee W. Roof] reports that a pet store owner was served with a lawsuit by the Snohomish Health District. The suit orders the man to stop selling baby turtles and to turn over his sales records to the Health District. The man said, "We have to fight it. I can't plead guilty to this because I'm not breaking the law." He reportedly said that he sells the tiny chelonians only to adults who have signed a form indicating that the animals will only be used for educational or research purposes. He points out that most egg-bearing animals have some form of *Salmonella* bacteria and added "The next thing, they will be banning baby iguanas. . . . If [the Health District] wants to raise hell with somebody, why not the chicken ranches or the supermarkets?"

Giant tortoise imperiled

Last year, *Science* reported that scientists on the Galapagos had discovered the carapaces of several giant tortoises that had been killed and eaten by humans. Now comes a report that sea cucumber fisherman, angered by the Ecuadorian government's ban on overfishing near the Galapagos, have threatened to harm "Lonesome George" the only known living member of his species on earth. In early January, masked fishermen "blocked a road, sank a vessel, and took over Ecuadorian national park facilities for a short time, according to the U.S. spokeswoman for the Charles Darwin Foundation, which has a research facility on the islands" [Leesburg, FL *Daily Commercial*, January 17, 1995]. Fortunately, the fishermen's threats to harm the animals on display were not carried out. [Also, same date Orlando, FL *Sentinel*, both from Bill Burnett.]

"Busted!"

- Swedish customs officials discovered 65 baby snakes in the bra of a 42-year-old woman who had intended to set up a reptile farm with the smuggled animals. A Customs official said he noticed something odd about the woman's chest, and suggested a further investigation. [Just about every paper on Earth: the first one here was from Bill Burnett, the Memphis, TN *Commercial Appeal*, January 20, 1995] Incidentally, there were six lizards running around under her blouse, too!
- A four-foot water monitor was called the "pit bull of lizards" by a reporter from the Orlando, FL *Sentinel* [January 4, 1995, from Bill Burnett] who described its capture by police. A police captain said the excitement started when "someone called in and said they had a dinosaur in their back yard." The lizard escaped the first officers sent to capture it, but was caught by Officer Alicia Douglass with a long-handled snare.

- Two Floridians were charged with possession of gopher tortoises when authorities discovered ten *Gopherus polyphemus* in the trunk of their car. One of the men has been arrested three times in four years for the same offense. [Leesburg, FL *Daily Commercial*, December 23, 1994, from Bill Burnett]

- A man was arrested with 300 poison dart frogs, 14 boa constrictors, 200 bird-eating spiders and a bunch of spider egg sacs at Miami's International Airport. He was charged with smuggling and released on a \$100,000 bond. A U.S. Fish and Wildlife Agent described the reaction of the Customs agent when she found the critters, "[She] really went off like a rocket when she found this guy had let her go digging around in his suitcase with poisonous frogs in there." The Agent estimates that only 10 to 20 percent of animals smuggled illegally are ever discovered. [The Leesburg, FL *Daily Commercial*, December 21, 1994, from Bill Burnett]

- A man and two children were admonished and the man ticketed after they killed a mangrove water snake by stoning it to death at the "Ding" Darling National Wildlife Refuge. The man will be fined \$250 if he is found guilty. The Sanibel, Captiva *Islander*, January 3, 1995, reports "The man said he did not know it was illegal to kill snakes in a wildlife refuge." Contributor R. M. Bertoni wrote "... while we herpers have done a good job of educating ourselves, we've got a long way to go with the public!"

- A four-foot, 20-year-old African dwarf crocodile was taken away from her owner by Arizona state game officials because the owner did not have a permit to own an endangered species. Their Game and Fish Department's chief law enforcement officer was quoted "A crocodile can get loose and live for years in the waters around here. That's why we have a concern about crocodiles. We've found several in canals, rivers and lakes." The pet was discovered after a storm set off the burglar alarm in the home where she was living peacefully in a \$10,000 habitat. The police found the croc and a Gila monster when they responded to the alarm. The owner pleaded guilty to a misdemeanor, paid a \$500 fine and applied for a permit. The game officials recommended the application be denied, citing the man's new criminal record, but CHS member Tom Taylor noted that the permit was issued after all! [Phoenix, AZ *Gazette*, January 27, 1995, from Tom Taylor]

- A Mongolian air passenger bound for Tokyo was arrested at Beijing International Airport after guards discovered three fossilized dinosaur eggs in his luggage. China has decided to get tough with fossil smugglers after having large quantities of good scientific material stolen and taken out of the country. [China Daily, January 16, 1995, from P. L. Beltz]

Caveat emptor

Chinese Health Protection Food Association officials launched an investigation into wildlife products used in China as health remedies. They report that in one coastal county in Jiangsu Province, one dealer "turned the extract squeezed from 1 kilogram of soft-shelled turtles into 110,000 phials of expensive turtle essence" according to the December 30, 1994, *China Daily* [from P. L. Beltz]. Unfortunately, China has no standards for health care products, no national health or food

and drug department, although new medicines are to be approved by the State Pharmaceutical Administration "after several years of clinical observation."

\$5,000 Reward

Three injured sea turtles were removed from holding tanks at the Marathon [FL] Turtle Hospital after someone broke into the facility. It is believed that the turtles were thrown into the ocean by the person(s) who burglarized the center over the New Year's weekend. One of the turtles was spotted behind a motel and it was recovered by the Hospital. If found, the person(s) responsible may be charged under federal statute since the turtles were being held at the hospital under permit from the National Marine Fisheries Commission. One of the hospital's founders said, "This is tragic. If it was someone who thinks turtles should be free, we want them to know that we want turtles to be free too, but not before we fix them so they can survive in the open ocean." Money that had been set aside for new X-ray equipment will now be spent on an alarm system. The two missing turtles may pose an infection risk to other sea turtles. Anyone with information in the case is urged to call (305) 743-5376. All callers may remain anonymous. [The Florida Keys *Keynoter*, January 4 and 11, 1995, from Dee Fick, Florida Keys Herpetological Society]

\$100,000 Sought

A 44-year-old woman has "filed notice of intent to sue the Burnet Park Zoo in Syracuse, New York, for \$100,000, claiming she suffers post-traumatic stress disorder because curator Roger Clawitter chased her with a 10-foot boa constrictor. Clawitter says he was merely carrying the snake when [the woman] became irrational and ran away." [USA Today, January 13, 1995, from David A. Webb]

Market fest features reptiles

America's "hottest pet item" according the Pet Industry Christmas Trade Show is reptiles. The CEO of an animal product company was quoted "It's amazing; it's a category that is exploding in sales. . . . We had found reptiles was a category that was slowly developing. Reptiles don't make noise and are low maintenance." [Chicago Tribune, November 27, 1994, from Steve Ragsdale.] Canned diets intended to "replicate the mouse," terrarium lighting, little hats for iguanas, reptile watering devices, "Pawrier" bottled pet water, and other items were available.

A pet store with a mission

Tucked into a commercial area of New York City at 155 East Second Street, is a pet shop called Lizard Breath 2000. Run by life-time herp enthusiast Dominique Nadel, the store puts "the pet's well-being before the owner's" by requiring potential owners to show what they've learned from background reading and other sources according to the *New York Times* [January 15, 1995]. Mr. Nadel said, "It's common for someone to purchase an animal on the spur of the moment out of a fetish or a kick. I once had some coke dealers come in and offer me \$5,000 for a lizard. . . I declined because I knew it would end up dead."

Frog TV, II

A researcher at the Mercer University School of Medicine in Macon, Georgia, has been receiving a lot of press lately after getting two students to video *Rana pipiens* eating earthworms and meal worms. Their results are aimed at an understanding of how vertebrates mobilize joints and muscles when they're in a hurry. [*Science News*, 146, December 24 and 31, 1994, from Mark T. Witwer.]

Usually we use "bondo"

Jim Harding sent a copy of his state's new "Turtles of Michigan" poster with the note "use for patching plaster, etc." The poster has lovely photos (by Jim) of the common snapping turtle, the common musk turtle, the spotted turtle, the wood turtle, the Blanding's turtle, the red-eared slider, the painted turtle, the common map turtle, the spiny softshell turtle, and the eastern box turtle top and bottom. You can order a copy of this lovely full color approximately 18 × 24 inch poster by sending \$1 to Department of Natural Resources, Nongame Wildlife Fund, Wildlife Division, P.O. Box 30180, Dept. TU, Lansing, MI 48909-7680. As with all these types of things, it is advisable to send a 3 × 5 card with your name and address typed (or use a printed return label) along with the name of the poster you are ordering. This will make it easier for the people on the other end and you'll be more likely to get your stuff quickly.

Turtle Recovery Program 1994 Highlights

Michael W. Klemens, the director of the New York Zoological Society's Turtle Recovery Program recently sent a copy of their Project Highlights. It includes descriptions of what they've done to help turtles and tortoises worldwide. For instance, they worked with Mexican institutions and societies to protect the 45,000-acre Rancho Sombreretillo by working with local landowners in developing and implementing a voluntary land management protection effort. The resulting land improvements are intended to aid recovery of the Bolson Tortoise (*Gopherus flavomarginatus*). I cannot begin to do justice to all the fine programs listed in this seven-page report. I urge all CHS members interested in the recovery and conservation of turtles world-wide to contribute to this project. Any amount is welcome; of course, the more the better. Please make checks payable to the "WCS—Turtle Recovery Program" and send to Dr. Klemens, Wildlife Conservation Society, 185th Street and Southern Boulevard, Bronx, NY 10460. Incidentally, my husband and I spent a rainy January day at the Bronx Zoo and found it to be one of the most marvelous institutions of its type we've ever been to. Displays are set up on ecosystem lines, not one critter per box divided by family. We found we were seeing a lot more herps than the average zoo visitor, although how everybody else failed to see the giant constrictor in the "fallen log" over a set of stairs, I never will know! We waited and waited to hear somebody scream, *a la* John Behler's tale, but no one even saw it that day. Oh well, there's always a next time.

Gwendolyn restored

Regular readers of the column may recall that a Miami pet owner was slapped with criminal charges after his pet alligator

strolled away from an outdoor enclosure last September. In late December, Judge Loree Schwartz-Filer threw out the criminal charges. Prosecutor Howard Marbury was accompanied by four other prosecutors in the courtroom (has he got O.J. fever, or what?) and said the state plans an appeal of the ruling. Over one thousand people signed a petition asking that Gwendolyn be returned, and when she was brought back, she was welcomed by cheering crowds and a welcome banner. [Leesburg, FL *Daily Commercial* and the Orlando, FL *Sentinel*, both December 31, 1994, from Bill Burnett]

One gator, one egg?

Xinhua news agency reports "Artificial breeding has been so successful in saving the once-endangered Chinese alligator from extinction that now there are too many of them. The number of artificially bred alligators rose to 4,000 in 1993 from a mere 500 a decade ago." The breeding center was established in the early 1980s in Anhui Province. It now has 10 ponds, each of which produces 100 or more new alligators a year. It costs about \$400 to keep each adult every year, and the center can no longer afford to let the alligators reproduce freely. [*China Daily*, January 15, 1995, from P. L. Beltz]

Maybe it was looking for a job?

CHS member and U.S. Postal Service carrier Joe Taffis sent a clipping from the November 1994 issue of *Focus*, the newsletter of the U.S.P.S. It read, "A four-foot king snake recently toured the Duncan, Oklahoma, Post Office. [The] Postmaster . . . met up with the snake as [it] was slithering across the floor. . . . [A] Window Clerk . . . captured the snake in a #3 sack and escorted it from the premises. . . . [The Postmaster concluded] 'We don't have anything against the snake personally, it's just that we are supposed to be a snake-free facility.'"

Thanks to everyone who contributed this month and to Ernie Liner, F. Calogero, Mark T. Witwer, Steve Ragsdale, Bill Burnett, Manny Rubio, Jim Zimmerman, John Christianson, Kathy Bricker, and Lee W. Roof, too. You can contribute—just send the clipping with date/publication slug and your name firmly attached (tape preferred) or the whole page(s) from the paper to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. Letters and referred files can be sent by e-mail to: uebeltz@uxa.ecn.bgu.edu.

NEW T L I N E

The newly elected 1995 CHS Board Members settled into position on January 25 for their first general meeting of the new year in the James

Simpson Theatre at the Field Museum.



Holding on to a second term, President **Marcia Rybak** welcomed everyone to get involved in the Society by attending board meetings. Marcia addressed the rumors that have been circulating regarding future meeting space at the Field Museum. It was true that negotiations had begun concerning the use of the facility for Board and monthly meetings. She announced that negotiations are now complete and the CHS will continue to rent meeting space at a “noncommercial” rate. However, confusingly, the February 10th Board Meeting will be held at the Academy of Sciences.

On a sad note, newly elected Vice-President, **Steve Spitzer**, reluctantly announced his resignation from the Board due to personal conflicts.

Taking over the reins from the previous Membership Secretary, Steve Spitzer, **John Driscoll** announced he would be in the lobby during the break to sign up new members. Also, Membership Directories were now available at a cost of \$4.00 to current members.

Librarian **Jenny Picciola**, and her assistant, **Renee Gralewski**, suggested we check out the library cart's “neat new books” among which was the *Wildlife Laws Handbook*. (During the break, I strolled by the cart. I was most impressed by these two. The cart was neat, the staff was attentive and clear plastic bookmarks with the CHS logo were available on which were printed the “check-out” policy.)

The new Adoption Chairperson, **Char Haguewood**, read a long list of animals awaiting adoption. “A 5-foot red-tail—I guess that's a snake,” surmised Char, “along with a 4-foot caiman, a 4½-foot ball python, an 8-inch snapping turtle, a green frog, and a 9-foot Burmese python.” In addition to this capacity, Char is also coordinating the 1995 Midwest Herp Symposium tentatively scheduled sometime in October. The event will feature a presentation by **Walter Auffenberg** on saw-scaled vipers. Also part of this event will be a Breeder's Expo and Sale (captive-bred animals only) and a “dry-goods” sale. Veterinarians will be available for on-site inspection of animals purchased. Char asked for volunteers to staff the registration table and hospitality suite and to help “stuff envelopes.”

Marcia announced that Raffle Chairperson **Chuck Keating** needs a replacement for a few months. Marcia joked that she herself started out as a raffle chairperson and considers it “a stepping stone to the presidency”.

Show chairperson **Jenny Vollman** announced she is looking for volunteers for the annual Pet Show in Arlington Heights.

The CHS Annual Expo Committee will meet on January 27, 1995. **Ron Humbert** asked for a show of hands to check for conflicts in having the show at Triton College on Memorial Day weekend.

Turtle Club Representative **Ben Entwisle** welcomed visitors to attend meetings at the Emmerson Park Field House each month on the Sunday preceding the CHS meeting.

Marcia introduced **Nicole Marrello**, Chairperson of the newly formed Committee on Group Workshops and Field Trips. Although the date has not been determined, the first workshop will be held at “The Grove” in Glenview. This workshop will cover parasitology in reptiles and amphibians. CHS Members would be encouraged to bring in fecal samples from animals. There will be an undetermined fee to cover costs. The committee welcomes ideas for future classes.

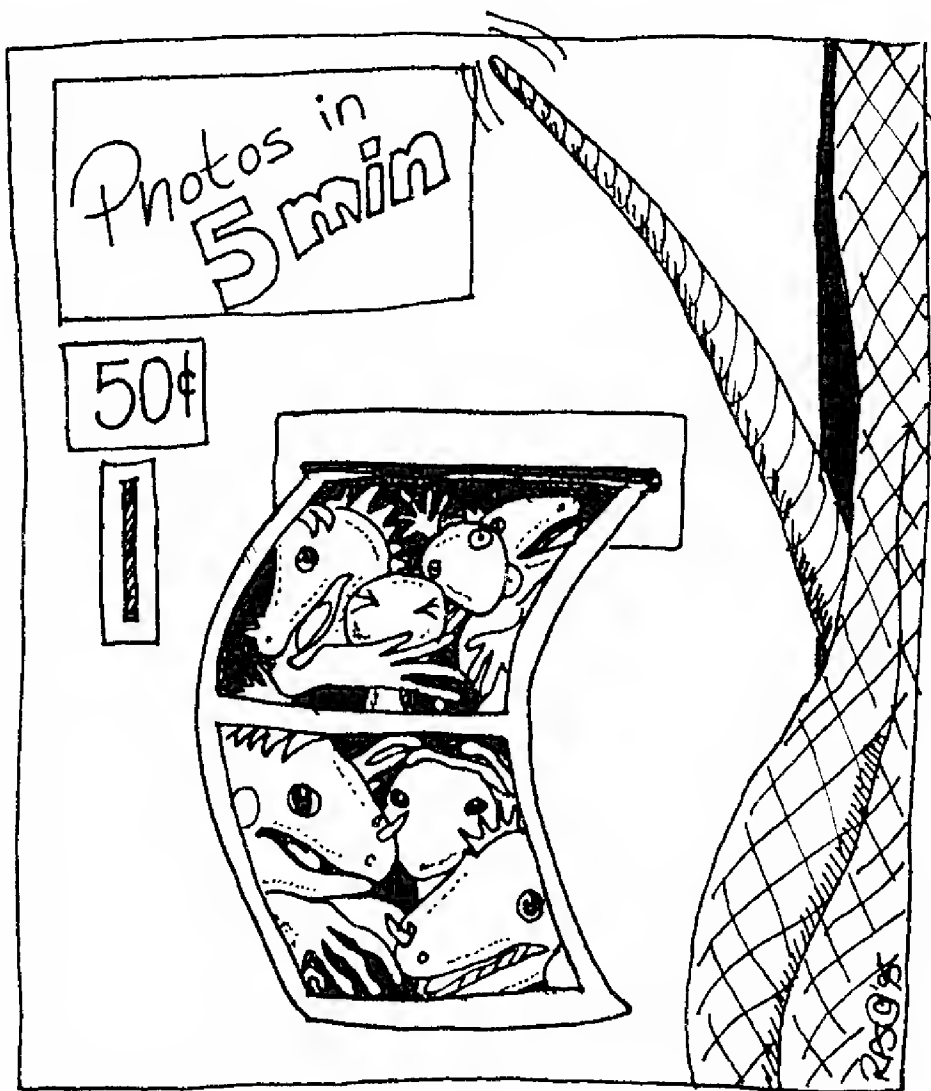
Sales Director **Joan Moore** spoke of interesting books and welcomed us to “stop by and chat.”

After a 30-minute break, followed by the traditional raffle, Steve Spitzer introduced featured speaker **Jim Rowan**. Jim retired from the Lincoln Park Zoo in January after 17 years (10 of those years were spent as a keeper in the Reptile House) to pursue his dream as a professional photographer. Jim's goal is to “identify and photograph every animal on the planet.” And that is exactly what he attempted to do—show us every animal on the planet.

Taken with a Minolta camera, using a 50 mm macro lens and extension rings, Jim's photographs were most impressive. He began the slide presentation with photos from his trip to the Galapagos Islands. Government certified guides accompany visitors arriving by boat to the islands. The islands are protected and tourists are not allowed to stray from the guided path or to make physical contact with the wildlife. This policy is in effect in order to maintain the natural behavior of the animals, but given the number of tourists and the heavy foot-traffic, I find it hard to believe that considerable disruption does not occur. Jim acknowledged that these animals have little fear of human beings and allow a camera to get 2 inches from their face. Too many slides of the “beachmaster” sea lion and his harem of 150 females basking in the sun were shown. Almost an entire slide tray was shown before we saw our first reptile.

The Santa Cruz Island's Darwin Research Station was shown with its tortoise rearing pen. Pinzon Island's “Lonesome George” was shown, along with Isabela Island's Alcedo Volcano. Jim believes the marine iguanas found on the islands were probably the model for the “Godzilla” movies.

Land iguanas were shown along with lava lizards. Endemic species of invertebrates were shown; the Lava lightfoot crab, a wolf spider with a five-inch leg spread, and centipedes which eat cockroaches on the island. Photos of the many avian species were shown. Blue-footed boobies in courtship, a red-



footed booby, a masked booby nesting right on the tourist trail, frigate bird, lava heron, Galapagos dove, flightless cormorant, lava gull, swallow-tail gull, Galapagos penguin were all captured in beautiful detail.

It was then on to the rainforest in Costa Rica. The 600,000-acre Braulio Carrillo National Park was shown. The park was established by the government to preserve wildlife when a logging highway was built from San Jose to the coast. Poor soil has created majestic trees with enormous buttresses to add support not provided by their shallow root systems. A diversity of rainforest species was shown. A green iguana, anoles (both tree and ground dwelling), spiny-tailed iguanas, poison-arrow frogs, a chunk-headed tree snake which feeds on frogs, hummingbirds, Honduran white tent-making bats, dwarf fruit bats, vampire bats which feed on the blood of cattle, and a Capuchin monkey. A student of invertebrates, Jim showed us his favorites. Among them a cleverly camouflaged katydid, grasshoppers, a praying mantis, a walking stick, a leaf beetle, a weevil, a harlequin longhorn beetle, various moths, leaf-cutting ants, a giant forest millipede, arthropods, a zebra-striped tarantula, scorpions, and wolf spiders.

We moved on to Malaysian Borneo. Photos of water buffalo and rice paddies, Islamic architecture, a Buddhist temple and the Danum Valley Research Station were shown. Jim believes the Asian rainforest is, "the closest to Indiana Jones country I've ever been." Photos of Asian elephants, geckos, crocodiles, a white-lipped frog, a 4-lined frog, a side-blotched frog, katydids, moths, and pill millipedes were shown. Enough to give anyone "the willies" was the terrestrial leach which drops out of trees, much like a tick, and clings to any part of the body. Several times a day, Jim would check himself for these leaches. Also shown was the Orangutan Rehabilitation Center in Safalok. The center reconditions captive

orangutans for release into the wild.

A highlight of the presentation was the photos of the Turtle Islands Park in Malaysia. After sunset, sea turtles come ashore to dig 3-foot-deep nests on the island. Tourists must stay inside as not to disturb them. Rangers wait until turtles drop eggs before allowing tourists to photograph them. Typically the egg laying takes about 1 hour, leaving a clutch of 120 eggs. To preserve them from monitor lizard predation, researchers take measurements of the female, tag her and release her. They then dig up the eggs and transport them to an artificial nest or "turtle garden" for hatching. Once hatched, at night, the babies are released in the same area where the nest was found. Rangers stand in the seawater with flashlights to direct the baby sea turtles into the water. It is thought that the turtles believe this to be the moon or the stars. Mortality rate among the young is high. Perhaps one or two sea turtles per nest make it to adulthood, if seagulls, crabs and fish don't get them first. Jim reminded us that sea turtles are protected under CITES and that it is illegal to hunt or dig up nests. Nevertheless markets do sell them and police make arrests. It seems there is always another vendor ready to take the place of one who has been arrested. Jim believes the solution is to educate the general public not to buy the sea turtles. Thus, the lack of demand would put the vendors out of business.

He began his third slide tray with photos of Illinois fauna. Shown was a long-tailed salamander from southern Illinois, a cave salamander from Shawnee National Forest, a blue-spotted salamander, a tiger salamander, an eastern newt, a common American toad, and a Fowler's toad from the Indiana Dunes, along with a spring peeper frog, green frog, leopard frog and bullfrog. A Southern copperhead from Giant City State Park, northern water snakes, an eastern milksnake, an eastern box turtle, a prairie box turtle, an eastern painted turtle (laying eggs), a snapping turtle, a baby snapping turtle, and an eastern fence lizard were shown.

While Jim's photos were beautiful and certainly worthy of commercial publication, it was just as interesting to hear how he captured the shots. Jim starts out with a "hit list" of specific animals he hopes to photograph. Over the years he has become quite adept at finding camouflaged wildlife in the environment. He uses a headlamp to shine along the trails and "never sees the same insect twice." To aid in capture, he uses snake hooks and sets up mist nets to trap bats and insects. Once captured, he transfers them to a research station and photographs them under controlled circumstances. Here he is able to mold them, place them on appropriate leaves or use props to simulate natural surroundings. He is careful to return the animals to the exact location they came from. Jim has found so many different animals, occasionally he requires the help of a museum expert to identify those in his photographs.

Steve Spitzer thanked him and concluded the meeting by asking for suggestions for a February guest speaker.

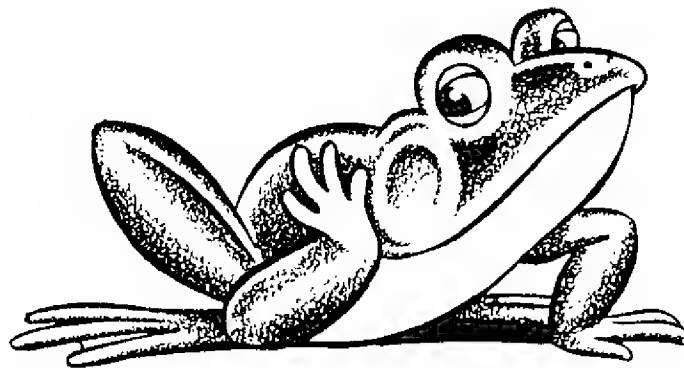
We stay in touch, so you stay in touch.

Respectfully yours,

NEWT

The Tympanum

Since the publication of "The Amphibians and Reptiles of Coleman County, Texas" in the January edition of your *Bulletin*, I have received several contacts from individuals pointing out many critical errors in the article. At this time I would like to correct those.



1. The title of the article is misleading; it leaves the impression that this was an in-depth survey when it actually was a listing of species caught within a short period of time. The list of species I recorded isn't half of what are documented to naturally occur in Coleman County.
2. The listing of the alligator snapping turtle (*Macrolemys temminckii*) on the county's threatened list is incorrect. This species is not known to be present in Coleman County.
3. The sentence which states that three road-killed Texas horned lizards (*Phrynosoma cornutum*) were collected is also incorrect. Photos and measurements were taken but the individuals were not collected. I did not possess a permit for this protected species, so I did not take them into possession.

I apologize for these grave errors and feel that they should be corrected. My ignorance and experience at this has taught me a very valuable and unforgettable lesson. **Stacey Slater, U.S. Army Corps of Engineers, HCR 75 Box 33, Coleman TX 76834.**

In the February 1995 CHS *Bulletin*, Dr. Willard wrote that she was involved in a project to rescue unwanted pet turtles in Canada. The turtles were to be shipped to their natural ranges within the United States for release. She has already released 409 turtles. She is keeping another 155 turtles ready for release and has over 75 on a waiting list. Dr. Willard was looking for an area as separate as possible from wild populations in which more turtles might be released, as well as for someone interested in studying the impact of such a release on the ecology of the area. Red-eared sliders, *Trachemys scripta*, and false map turtles, *Graptemys pseudogeographica*, were mentioned as the main species involved.

Dr. Willard has a very humanitarian goal and helping these unfortunate turtles is a noble gesture. However, releasing them is a controversial topic that raises several issues. I am sure that Dr. Willard is well aware of these issues and has considered them. The purpose of this letter is to spell out those issues to readers of the *Bulletin* who may be unfamiliar with the implications of releasing captive reptiles.

Relocation, repatriation and translocation programs for reptiles are popular, but few studies have been undertaken to find out whether or not the released animals survive. Of those programs that have been monitored, few have been successful (Dodd and Seigel, 1991). Another unknown result is the effect those released animals have on the gene pools and social structures of existing populations. The final and most important concern is the possibility that the released turtles might trans-

mit contagious diseases to existing populations (Jacobson, 1993; Jacobson, 1994). The best known example of this is the epidemic of upper respiratory tract disease (URTD) in desert and gopher tortoises in the United States.

The cause of this outbreak is thought to be the release of captive tortoises into the wild (Jacobson, 1993; Jacobson, 1994). The devastating effect of diseases on wild populations is evident in the study of one tortoise population in California in 1988. Of the 468 live tortoises that were located, 43% had symptoms of URTD. Additionally, 627 dead tortoises were discovered during the study (Jacobson, 1993).

The obvious conclusion is that the release of captive reptiles should be done with great caution, and only after thorough screening of the subject reptiles for contagious diseases.

Stephen L. Barten, D.V.M., Vernon Hills Animal Hospital, 1260 Butterfield Road, Mundelein IL 60060.

References

- Dodd, C. K., and R. A. Seigel. 1991. Relocation, repatriation, and translocation of amphibians and reptiles: Are they conservation strategies that work? *Herpetologica* 47:336-350.
- Jacobson, E. R. 1993. Implications of infectious diseases for captive propagation and introduction programs of threatened/endangered reptiles. *Journal of Zoo and Wildlife Medicine* 24:245-255.
- . 1994. Veterinary procedures for the acquisition and release of captive-bred herpetofauna. Pp. 109-118. *In: J. B. Murphy, K. Adler and J. T. Collins, editors, Captive Management and Conservation of Amphibians and Reptiles*. Ithaca, NY: Society for the Study of Amphibians and Reptiles.

Herpetology 1995

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editors assume full responsibility for any errors or misleading statements. JCM

GECKO WARS IN GALVESTON, TEXAS

P. D. Klawinski et al. [1994, J. Herpetology 28(2):225-230] note that two species of geckos, *Hemidactylus turcicus* and *Cyrtopodion scabrum*, have been introduced into the Port of Galveston, Texas. *H. turcicus* has been established for a longer period of time, the relatively recent introduction of *C. scabrum* near the entrance of the Port has apparently led to the displacement of *H. turcicus* in that area. This has resulted in a distribution in which the two populations are largely allopatric except for a narrow band of sympatry at the periphery of each of their ranges. The authors examine stomach contents of both species in allopatry and sympatry in order to determine if dietary overlap in sympatry is less than in allopatry. Pianka's symmetric overlap for geckos occupying sympatric areas is 0.55, and allopatric areas is 0.81. The authors find significant differences between the resource utilization distributions of the two species in sympatry but not in allopatry. In addition, they compare overlap between allopatric and sympatric populations within each species and find the difference in resource use between the two species in sympatry is due to a dietary shift exhibited in *H. turcicus* but not *C. scabrum*. Observed differences in resource utilization may be a response to competition between these two species in sympatry which may have led to the exclusion of *H. turcicus* on areas of the docks occupied by this species prior to the introduction of *C. scabrum*.

COLOR CHANGE IN NEWLY METAMORPHOSED AMERICAN TOADS

J. T. Heinen [1994, J. Herpetology 28(1):87-93] analyzes color change in newly metamorphosed American toads, *Bufo americanus americanus*, as a function of background color, temperature and desiccation. Toads show no tendency to change color as a function of desiccation. Toads kept on light or dark substrates darken or lighten (measured by comparison to Munsell Soil Color Charts), respectively, an average of two Munsell Color Values over a 2-h period. About half of the color change occurs within the first 15 min, and the rate of color change is low after one-half hour. Actively hunting garter snakes caught more dark-matched than light-matched toads on a light colored background (sand), but there was no difference in capture rates between dark- and light-matched toads on a dark-colored background (topsoil). Both dark- and light-matched toads prefer the dark background, and toads move less frequently on the dark background. Dark-matched toads tend to move more frequently than did light-matched toads on the light background. The ground color of animals caught in the wild on sunny afternoons shows a positive relationship with the background color of the substrate on which they first are observed.

GARTER SNAKE MIGRATORY ABILITIES

P. A. Lawson [1994, Copeia (2):263-274] tested the navigational abilities in nonmigratory populations of garter snakes (*Thamnophis sirtalis* and *T. ordinoides*) from Spectacle Lake Provincial Park on Vancouver Island, British Columbia, Canada. Displacement studies were done between 1986 and 1988 to determine the level of orientational abilities present in each species and to examine potential orientation cues. Snakes were displaced from their home range and tested in an area under a variety of conditions. The results demonstrate that nonmigratory *T. sirtalis* possesses advanced navigational abilities. Advanced abilities may be absent in *T. ordinoides*. *Thamnophis sirtalis* demonstrates time-compensated solar orientation as determined by 6-h phase-delay tests. Pheromone trails produced by gravid females, but not by males, may also provide an orientation guide for *T. sirtalis* under some conditions. *T. ordinoides* does not respond in a discernable way to either solar or pheromonal cues. The findings of this study are compared with similar tests performed on a migratory population of *T. sirtalis*. Navigational skills vary little between migrating and nonmigrating populations of these same species but may be poorly developed in nonmigratory species.

NATTERJACK TOAD REPRODUCTIVE STRATEGIES

J. S. Denton and T. J. C. Beebee [1993, Animal Behavior 46: 1169-1175] report on the behavior of both sexes of natterjack toads, *Bufo calamita*, in an isolated population of about 100 adults in Hampshire, U.K., over a period of five years. All of the animals in the population are recognizable by toe-clipping and throat-spot patterns. Most males remain sexually active throughout the breeding season (April-June) but a significant minority (40-44%) of individuals, indistinguishable by size or survivorship from the population average, visit the ponds for only the first two weeks of the breeding seasons. The former group is more successful than the latter in amplexing with females. There is no correlation between male body size and breeding success; residents visited just one pond and called from it throughout the breeding season, while switchers move irregularly between several ponds. These strategies are highly conserved by individuals between years, and are not related to body size. Switchers are more successful in obtaining females, and do not suffer higher mortality rates than residents. There is a direct correlation between the amount of male calling activity at a pond and its attractiveness to females. In any one year only 44-64% of females spawn. After the breeding season, females spend more time hunting than males during summer and autumn nights.

Unofficial Minutes of the CHS Board Meeting, February 10, 1995

The meeting was called to order at 8:04 P.M. by Marcia Rybak. Board member Brian Jones was absent.

Officers' Reports:

The minutes of the January board meeting were read, corrected and approved.

The Treasurer's Report was read and approved.

Current CHS membership is 1,762.

Old Business:

Legislative: Chris Lechowicz reported that the Legislative Committee was unable to meet in person, but has met by telephone. The committee plans to have information published in the *Bulletin* soon.

Shows: Joan Moore, Ilene Sievert and Jill Horwich will participate in the Audobon Society's "Urban Wilderness" conference to be held at Northeastern University on March 25. The CHS will also be participating in the Arlington Pet Show that same weekend. Marcia Rybak is scheduled to give a presentation entitled "Is a Reptile the Right Pet for You?" The Rolling Meadows Police Department would like assistance with a three-hour class in handling reptiles, scheduled for May 26. Ron Humbert received a request for the CHS to participate in the Little Red Schoolhouse Nature Center's "Environmental Awareness Exposition" on June 11. Jerry Fuller, of the Kingsley School in Evanston has asked for CHS volunteers to do school shows. Ron Humbert and Jack Schoenfelder participated in the Naperville Science Olympiad for third through fifth graders recently. Marcia Rybak recently judged a science fair at the Walt Disney Magnet School.

Raffle: Mike Ross has volunteered to run the raffle during meetings. Volunteers are still needed to take over the raffle completely.

Library: New CHS librarian, Jennifer Gralwski, gave out CHS bookmarks at the January meeting.

Expo: Ron Humbert has met with representatives from Triton College. The college is sending the CHS a contract for use of their facility for the Expo during Memorial Day weekend. The next Expo committee meeting is scheduled for 7:30 P.M., February 17, at the home of Renee Gralewski. Ron Humbert will call committee members to confirm.

Adoptions: Char Haguewood is the new Adoption Committee chair.

Workshops: Nicole Marrello, our new Workshop Coordinator, has arranged for CHS workshops to be hosted by The Grove Nature Center in Glenview. The first parasitology workshop will be scheduled for a Saturday evening in March, to be announced. The CHS extends a complimentary membership to Steve Swanson of The Grove in appreciation for the use of that facility.

Facility: The Field Museum of Natural History has agreed to

allow the CHS to use its facility for meeting space for no consideration. However, we must agree to pay a maintenance person. Also, the smaller Montgomery Ward Auditorium is no longer available. Therefore, we must meet in the larger Simpson Theatre, which requires an audio-visual technician at an additional cost to the CHS. Additionally, the CHS will be required to deposit two months' payment in advance into an account to be controlled by the museum.

Lincoln Park Zoo is interested in hosting CHS meetings. The auditorium space at the Zoo is approximately the same size as Montgomery Ward Auditorium at the museum; however the lobby is much smaller and there would be no storage space available for the CHS library or sales merchandise. There would also be a fee for use of the zoo space. At present, there is plenty of free parking available. The zoo space, however, may be remodeled in 1996, and therefore become unavailable.

A discussion was held regarding various alternatives. Marcia will continue to negotiate with the museum before a final decision is made. Any CHS member with any additional suggestions for alternative meeting space should contact a board member ASAP.

Director of Sales

Joan Moore reports that a book service flyer will appear in the February *Bulletin*. Her plan is to have some bookstore advertisement in every *Bulletin*.

New Business:

Mailing Address: The CAS may be changing its mailing address shortly. Joan Moore will find out the new address and the date of the change so that the CHS can change its mailing address accordingly.

School Program: Naperville Community School District No. 203 will hold its annual Teachers' Agri-Science Program this summer. Ron Humbert will send a supply of CHS membership brochures and symposium flyers to the School District for distribution at this event.

Grant Request: CHS member Mike Redmer has requested a CHS donation of \$1,000 to purchase transponders for a study he is performing on Blanding's turtles. He needs the money by the end of this month. Marcia Rybak forwarded this request to Tony Rattin, chair of the CHS Grants Committee.

Round Table

John Driscoll reported that Earthwatch wants announcements of two of its upcoming events published in the CHS *Bulletin*.

John Driscoll will send information regarding the CHS to *Breeder's Monthly* to be published in its advertising section.

The meeting adjourned at 10:37 P.M.

*Respectfully submitted by the Recording Secretary,
Jill Horwich*

Advertisements

Accrue more herpetological knowledge: Connect with your peers throughout North America and abroad. The HERPETOLOGY ONLINE NETWORK is active 24 hours/day. Any computer modem can access Herp-Net via (215) 464-3562 (300–1200 baud 8-N-1) or (215) 698-1905 (9600+ V32, V42bis.) Submit news via FAX: (215) 464-3561 any time.

Attention: the Varanid Information eXchange is a society of herpetoculturists sharing an interest in MONITOR LIZARDS. Members receive the bimonthly newsletter, *VaraNews*. Annual membership is: U.S., \$10; foreign, \$12 surface/\$15 air. For a free copy, send a legal-size SASE to: Varanix, 8726D S. Sepulveda Boulevard, #243, Los Angeles CA 90045.

Fauna classifieds: monthly classified publication for reptiles, amphibians, food items & supplies, literature and more. Excellent information source, worldwide circulation. Subscription \$14/year. Free sample & info. Write: FAUNA, 2379 Maggio Circle Unit C, Lodi CA 95240.

For sale: **HIGH QUALITY FEEDER ANIMALS PRODUCED FROM THE BEST LAB DIETS AVAILABLE.** Tenth year of production and supply of frozen feeder animals. All feeders can be removed one at a time from the bag; they are not frozen together. All orders **will arrive frozen**. Now offering *seven* sizes of mice: small newborn pinks, medium size pinks, large fuzzy pinks, extra large fuzzies/small hoppers, juvenile mice, young adults, and large adults. Also available are pinkie rats, baby chicks, and quail chicks. Orders sent special delivery, postage extra. **Free pricelist.** Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358, after 6 P.M. Central Time on weekdays, all day Saturday and Sunday.

For sale: *THE GOURMET RODENT*: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, 6115 SW 137th Avenue, Archer FL 32618, (904) 495-9024.

For sale: top quality mice, rats and Chinese dwarf hamsters. All sizes at competitive prices. Gary W. Allison, 919 Wyandotte Street, Bethlehem PA 18015, (215) 974-8975.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, \$25/100; fuzzies, \$30/100; weanlings, \$35/100. Also available are 4 oz. + rats, \$100/100. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: rodents and reptiles, Dallas–Ft. Worth Metroplex. J.R.'s Cowtown Critters, 1002 Harrison Avenue, Arlington TX 76011, (817) 460-RATS.

For sale: Pearlco ceramic heating elements, come in 60w, 100w and 150w, \$25 each or 2/\$48 plus shipping. In stock, Flex-watt and Ultra-therm heating products. **Frozen rodents** always available. Mice: pinks–crawlers, 3/\$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢–\$1; medium, \$1.25–2.00; large, \$2.25–2.75; jumbo, 3/\$10. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at higher prices. **Available now:** updated fall newsletter/catalog—many unique/hard-to-find herp husbandry items. It's also baby snake season! Send business-size SASE for catalog, or call. Scott J. Michaels, D.V.M., Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: FROZEN RODENTS. Mice pinks, \$25/100; adults, \$35/100; breeders, \$55/100; rats, \$75/100 and up, jumbo available occasionally. KJ's Rodents, R.R. 1, Box 266, Detroit Lakes MN 56501, (218) 439-6999.

For sale: SUPERWORMS, *Zophobas morio*, ultimate food for reptiles, birds, fish; \$18.95/lb., plus \$3 shipping. Keeps 8–10 months at room temperature, far less chitin for complete digestability. Send SASE for information to Joe Sutter, P.O. Box 59119, Birmingham AL 35259, (205) 871-5570, 4 P.M. - 7 P.M. Central Time.

For sale: GREAT FEEDER INSECTS! King mealworms at great prices (wholesale/retail). Quantity discounts. *Place your order today!* North County Exotics, P.O. Box 4856, Salinas CA 93912-4856, (408) 663-0566, please leave message.

For sale: turtle and tortoise chow, excellent food—1 lb, \$5; 3 lbs, \$10; 5 lbs, \$15 (postage paid). Send cash, check or money order to Herp's Delight, Dept. C, 20 Ablett Avenue, Whitesboro NY 13492.

For sale: Tired of getting bitten while collecting, feeding or maneuvering animals? Try my Whitney tongs—10% discount to herp society members—2', \$65 each; 2½', \$66 each; 3', \$67 each; 3½', \$68 each; 4', \$69 each, 5', \$85 each; 6', \$90 each. Will ship U.P.S. extra. Send money order or cashier's check to Don Lunsford, 5661 Walkerton Drive, Cincinnati OH 45238.

For sale: collection of 120 different outdated antivenom/snakebite kits from all over the world, \$600. Also, collector's item—snake catching box made and used by Carl Kauffeld. This is the box Carl used on his collecting trips to South Carolina, 30"l x 20"h x 12"w, three compartments, top opens and two side compartments. Box was never cleaned out and still has (unsoiled) *Staten Island Sunday Advance* newspapers dated April 17, 1977. See book *Snakes and Snake Hunting* for picture of box, \$500. Steve, (516) 957-3624. [NY]

For sale: herp books. *The Amphibians and Reptiles of Botswana* by Auerbach (S), \$75; *The Last of the Ruling Reptiles* by Neill, \$80; *Monograph of the Snakes of Japan* by Maki, 3 vols., \$465; *The Cold Blooded Australians* by Schmida, \$60; *Rattlesnakes* by Klauber, 2 vols., 1972 edition, \$300; *A Guide to the Snakes of Uganda* by Pitman, 1974 reprint, \$275. Other titles available and I am always interested in acquiring new titles. Make check or money order to Keith Neitman, 11415 Longbrook, Houston TX 77099.

For sale: books. *Die Familie der Warane (Varanidae)* by Robert Mertens (1942), complete 3-volume monograph on the monitor lizards, near mint condition, \$450/set; *Amphibians of Argentina* by Cei (1980), near mint condition, \$125; *Reptiles del centro, centro-oeste y sur de la Argentina* by Cei (1986), mint condition, Spanish with English keys, \$125; *The Rattlesnakes, Genera Sistrurus and Crotalus* by Gloyd (1940), original edition, near mint condition, \$110; *The Life of Reptiles* by Bellairs (1970), 2-volume set, ex-library, good condition, \$150/set; *The Cold-blooded Australians, A Unique Photographic Study of Australia's Reptiles, Amphibians & Freshwater Fish* by Schmida (1985), signed by the author, near mint condition, \$95; *FitzSimons' Snakes of Southern Africa* by Broadley (1983 revision), near mint condition, \$95. Include \$5 for insured shipping. Ohio residents add 5¼% sales tax. The Herp House, 1750 Haines Road, Orwell OH 44076, (216) 685-4615.

For sale: set of five posters first published by Army Air Forces Tactical Center for easy identification and habits of venomous snakes of the world, \$9 postpaid; *Field Guide to the Snakes of South Vietnam* by Simon Campden Main, \$10 postpaid; *Batrachia of North America* by E. D. Cope, \$16 postpaid; *Laboratory Anatomy of the Iguana* by J. C. Oldham and H. M. Smith, \$17 postpaid; *Time of the Turtle* by J. Rudloe, \$5 postpaid; *Atlas of Amphibians and Reptiles of New Zealand* by C. P. Pickard and D. R. Towns, \$18 postpaid. Catalog of over 4000 herpetological titles sent free upon request. Herpetological Search Service & Exchange, 117 E. Santa Barbara Road, Lindenhurst NY 11757, (516) 957-3624.

For sale: large selection of captive born reptiles and amphibians, books and supplies. Send S.A.S. business-size envelope for complimentary price list or \$5 for a 1 year subscription (bi-monthly), to Twin Cities Reptiles, 540 Winnetka Avenue North, Golden Valley MN 55427, (612) 593-0298.

Advertisements (cont'd)

For sale: overstock sale. Phillips plastic boxes (aka Wilson; Wilhold; Stillwell). Shoe boxes, \$2.25 each or \$25/dozen; high sweater boxes, \$6.15. Serpent City, (815) 363-0290.

For sale: 3' "alligator" tongs, \$50; pinky pump, \$40; 12" curved hemostats, \$50; Pearlco ceramic heat elements, 100w and 60w, \$10 each. (703) 524-7323, please leave message. [D.C.]

For sale: **Vita-Lites, Basking-Lites and Pearlco infrared ceramic heating elements, buy at cost!** Looking for other herpers who would like to buy lighting and heating products at cost. Examples of some prices: 24" Vita-Lite Power Twist, \$10.99; 48" Vita-Lite Power Twist, \$9.49; Basking-Lite (excellent for basking diurnal species) comes in 30- and 50-watt sizes that will adequately heat 5- to 50-gallon tanks, \$5.49–\$5.79; Pearlco heating elements (European technology that produces true infrared heat and is used by many zoos and professional breeders), 60-, 100- and 150-watt sizes, \$18. For more information on ordering, contact Rob Carmichael, P.O. Box 38, Vernon Hills IL 60061, or (708) 615-4388 leave message on voice mail.

For sale: reptile cage disinfectant and deodorant. Kills many types of infectious disease detrimental to herps. \$3.91 for 2 oz (makes 1 gallon). Wholesale and quantity prices available. Make checks payable to Bengal Pets, Inc., 1088 Chapman Road, Jesup GA 31545, (912) 530-6384.

For sale: three stackable cages with stand (35" × 18" × 18"), with glass sliding doors, vents and access holes, attractive and functional, \$180; one male and one female rosy boas, 1–2 years old, \$180/pair. Marc, (708) 597-6172 weekday evenings.

For sale: one pair of hedgehogs, \$200/pair. Jerry, (708) 594-6065.

For sale: c.b. frilled dragons, 6 months old, \$750 each. Dan or Phil, New York Reptilia, Inc., (718) 461-1371 tel, (718) 461-0749 fax, closed Mondays.

For sale: Australian bearded dragons, \$75–125; leopard geckos, \$25; red-footed tortoises, \$75. Call (before 10 P.M. Central Time) or write: Linda C. Putnam, Rt. 8, Box 580, Claremore OK 74017-9726, (918) 342-2159.

For sale: c.b. 1994 female Indonesian blue-tongue skink, \$125; c.b. 1994 pair of Sinaloan milksnakes, \$110; male red-tail boa, c.b. '94, nice pattern and disposition, \$75; female northern pine, c.b.'93, nice contrast, \$50. Jeff Dundek, (708) 361-5835.

For sale: three adult green iguanas. Male is 11 years old, of average appearance and a proven breeder in '92 and '94. The two females are captive-hatched siblings of the male in May of 1991 ad are gorgeous. Both produced large clutches of eggs last year that resulted in many fully-formed offspring although only one hatched. All three for \$500. Will consider selling individually. Troy, (314) 642-9422. [MO]

For sale: rhinoceros iguanas; Cuban iguanas; green iguanas; *Geochelone sulcata*; *G. elephantopus* (Florida sales only). D. J. or Sam, (305) 680-8492. [FL]

For sale: adult African spurred tortoises (*Geochelone sulcata*). If you are considering working with this species, or want to add to an existing collection, please give me a call. Specimens available now. (909) 780-0715. [southern CA]

For sale: large male African spur-thighed tortoise, 6 years old, c.b., A+ condition. Nancy Gordon, (815) 485-6642. [Mokena IL]

For sale: by June, the following corn snake (*Elaphe g. guttata*) hatchlings. New Jersey stock, a small slender snake with lots of orange and red, delicate in appearance but very hardy, \$50/pair; Delaware stock, these animals can grow up to 5', get heavy-bodied like an *obsoleta*, good amount of red and orange, \$40/pair; "red" corns, produced from my Maryland male (a handsome red devil) and my beautiful Charleston female (which will blow away **any** Okeetee), \$30/pair. Hope to be producing some beautiful, very hard to obtain pine snakes next year. Inquire if interested. Bart Bruno, (203) 773-9257.

For sale: available now, all c.b.&b. stock. Andean milksnakes, \$300 each; Borneo blood pythons, \$130 each; two male white-lip pythons, \$175; Macklot's pythons, \$100 each; two male and one female Louisiana pine snakes, \$300 each; b&w California kingsnakes, \$50 each; desert kingsnakes, very nice, \$40 each; male Baird's rat snake, \$30. Write or call for price list and additional info. Terry L. Vandeventer, Arco Iris Herpetoculture, 1016 Andover Street, Clinton MS 39056, (601) 924-1409.

For sale: one 16' + female reticulated python, very beautiful and tame with a 6' Neodesha cage and two heaters, \$1200 or best offer. Paul Richards, (312) 666-2146 or (312) 996-0305.

For sale: 5½' Colombian boa, perfect health, eats live or frozen, \$150. Tom, (708) 635-1767.

For sale: 6½' male common boa constrictor, nice disposition, golden body color, \$75. Ralph, (708) 205-9890.

For sale: **Brazilian rainbow boas** expected from beautiful orange parents, \$250. Send stamp for info/photo. Scott Schuett, 1820 Bigelow, Toledo OH 43613.

For sale: captive-bred snakes. Blood pythons, ball pythons, Burmese pythons, Kenyan sand boas, corn snakes, Illinois bull snakes. Will deliver in Chicago metro area or ship from O'Hare Airport. Joan Moore, (312) 528-4631.

For sale: one male and one female emerald tree boas, c.b. '94, 2½', \$925/pair or best offer; two male and four female smooth-scaled sand boas (*Eryx johni*), adults, some long-term captives, others c.b., nice, ready to breed this year, \$200 each, \$1050 group; two Timor monitors, adults, pretty, excellent condition, long-term captives, I think they are females, \$185 each; one male and two female fat-tail geckos, c.b. '94, 5", \$35 each, \$95 group; one male and one female Malaysian blood pythons, beautiful, c.b. '94, \$550/pair; ten male and twelve female African house snakes, c.b. '94, many colors, some are light tan, bright green, not the average plain brown, try some—you, I like them, \$30 each, four at \$23 each, ten at \$18 each; female Brazilian rainbow boa, c.b.'94, nice color, average crescents, slight kink in tail—will not affect future breeding capabilities, 175. (619) 287-3937, [San Diego]

For sale: 1995 projected offspring. Boa constrictors—Amazon Basin Colombian; Argentine; Bolivian; Belize Island; Dominican Island; Guyanan; Hog Island; Mexican; Peruvian redtail; NW Peruvian. Also Dumeril's boas; Savu Island pythons; Borneo short-tail, Sumatran black short-tail and Malaysian blood pythons. Call or write for price list: Tim or Janice Mead, RR5, Box 130A-1, Greenville TX 75402, (903) 454-1312.

For sale: one male and one female emerald tree boas, born 11/22/94, feeding on thawed mice from forceps, \$1000/pair; green basilisks from seven unrelated pairs, one month old, \$35, three months old, \$45, five to seven months old, unrelated pairs, \$100/pair. Wholesale prices and quantities available. Possible green water dragon hatchlings, Australian water dragon hatchlings, frilled dragon hatchlings. Ed Marino, R.D. 2, Box 436, Delta PA 17314, (717) 456-5760 after 5 P.M.

For sale: male diamond python, c.b. '93, with paperwork, \$3000; 5' male red phase Malayan blood python (*Python curtus brongersma*), c.b. '91, \$350; three male Madagascan ocelot geckos (*Paroedura pictus*), c.b.'94, blond phase 2–6 months old, \$45 each; two male and one female boa constrictors, c.b. '93, \$400/group; male albino Burmese python, possible hetero for albino–green, c.b. '93, \$185; one male and one female 9' Burmese pythons, c.b. '92, \$200/pair. Steve Bostwick, (515) 967-5716. [IA]

Free!!! NATION'S LARGEST CATALOG of reptile and amphibian supplies at the guaranteed lowest prices. Big Apple Herpetological's 48-page catalog includes incubators, cages, heating, digital thermostats & thermometers, lighting, cage accessories, husbandry & feeding/dosing equipment, medications, vitamins, foods, herp shirts and books. We also sell a large variety of reptiles. For FREE catalogs and product orders: (800) 666-6672. For product information: (212) 799-9065. For reptile information and sales: (212) 799-5231. Visa, MasterCard, Discover accepted. BIG APPLE HERPETOLOGICAL, P.O. Box 632, New York NY 10023.

Advertisements (cont'd)

Internship: The Miami Valley Serpentarium, a nonprofit organization, is seeking student interns for the fall 1995 season. MVS is an educational exhibit and a reptile breeding – venom research facility, located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Salary and benefits include experience with the most extensive and diverse collection of snakes in the area, housing and \$55/week in pay. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months (September–November) is required. To apply send a cover letter and resumé to: James R. Harrison, Executive Director, MVS Reptile Zoo, 1275 Natural Bridge Road, Slade KY 40376. Deadline for applications is June 15, 1995.

Pet-sitting service: Complete in-home pet and plant care, specializing in reptiles and other unique pets. Dogs and cats welcome with open arms, midday dog walking. Experienced and dependable service by devoted animal lovers, serving Chicago and suburbs, reasonable prices, fully insured and bonded. Ask about our habitat consultation and custom-made cages. Exotics & More, (312) 728-5457 or page us at (708) 750-3688.

Software: TRACS™—Total Reptile and Amphibian Control System. The most complete database and reporting solution for automating your breeding records. Perfect for hobbyists, commercial breeders and institutions. Only \$129. IBM PCs and compatibles. For more information or ordering contact Marcia Rybak at Leapin' Lizards, 736 N. Western Avenue, #315, Lake Forest IL 60045, (708) 735-8205 phone or (708) 735-8206 fax.

The Tortoise Shell Newsletter: "If you find a turtle on a fence post, it did not get there by accident." An informative newsletter for young and mature herpetologists. The Tortoiseshell includes everything you ever wanted to know about turtles: facts, fiction, fables, legends, myths, stories, contests, puzzles, games, songs, surveys & drawings, starring and hosted by Toby Turtle! Toby gives info on protection of endangered species and their habitats. A newsletter for all ages. Send for free sample copy today. Please include one first class stamp. The Tortoise Shell, P.O. Box 8181, Flint MI 48501

Tours: Five-day South Carolina herp and fossil tours, April–November 1995. Mini expeditions in search of 30-million-year-old turtles and crocodilians; living reptile hunts (vipers, king and rat snakes, turtles, anoles, broadhead and five-lined skinks, treefrogs and other amphibians), exotic reptile shopping and camping in a black water swamp forest. Finest Charleston hotels beginning and end of each tour. Twelve people per tour. Family plans available. \$489. For reservations call Steve Faust, (800) 894-TOUR.

Tours: Custom-designed tours to Costa Rica, Panama, Belize and Guatemala. Expeditions to fit the specialized needs of herpers, photographers, educators, writers, professionals in search of data, and travelers just interested in visiting these countries (with or without their families). From \$649. Steve Faust, (800) 894-TOUR.

Wanted: I am looking for current and back issues of herpetology-related magazines, symposia, journals and newsletters from around the world, including the U.S., England, Europe, Australia, Africa, etc. Joel, (814) 724-8351. [PA]

Wanted: *Uromastix acanthinurus*, *U. bentii* and *U. ocellatus*. Randy Gray, (817) 613-1242 evenings Central Time. [TX]

Wanted: captive raised or long-term captive female emerald tree boas; adult male Australian water dragon. Ed Marino, R.D. 2, Box 436, Delta PA 17314, (717) 456-5760 after 5 P.M.

Wanted: brilliant yellow *Lampropeltis getula* "brooksi", *L. g. sticticeps*, 85% yellow or more banana *L. g. californiae*, 60% white or more desert phase *L. g. californiae*, high yellow examples of *L. g. holbrooki*, red/orange and black *L. g. goini*, and black & white specimens of *L. g. goini* such as the animal pictured on plate 590 in the Audubon Society field guide. Will pay cash or trade my quality *Lampropeltis getula* ssp. hatchlings for the animals I want. Kirk Setser, 414 Wickham Road, Manhattan KS 66502, (913) 537-9449.

Wanted: Send your turtle drawings and stories to The Tortoise Shell, P.O. Box 8181, Flint MI 48501, and receive a free one-year subscription.

Wanted: styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from \$2 to \$5. Bring to CHS meetings. Scott J. Michaels, D.V.M., Serpent City, (815) 363-0290.

Wanted: the CHS Book Service is always in need of styrofoam "peanuts" for packaging shipments. Don't discard them; recycle by bringing them to Joan Moore at any monthly meeting.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (312) 588-0728 evening telephone or (312) 782-2868 fax.





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News and Announcements

1995 CHS HERPETOLOGICAL GRANTS PROGRAM

The Chicago Herpetological Society announces the CHS Herpetological Grants program to award financial support for herpetological research, education and conservation. Four awards of up to \$500 each will be available. Interested parties may apply for a grant in any one of the following categories:

1. Illinois Herpetology
2. Graduate Student Research in Herpetology
3. Undergraduate Research in Herpetology
4. Field Studies in Herpetology
5. Conservation
6. Captive Management, Husbandry, and Propagation

An attempt will be made to award grants in each category, but depending on the applications received, not all categories may receive awards. Some categories may receive more than one award. The Grants Committee reserves the right to reassign the category under which a given proposal is submitted. If applications are lacking, fewer than four awards may be distributed.

Applicants must be members of the Chicago Herpetological Society. In accepting a grant, the recipient agrees to abide by all state and federal laws, to submit a written summary of the project for publication in the CHS *Bulletin*, and to acknowledge the Chicago Herpetological Society in any publications that result from the subsidized research. Recipients are encouraged to submit their work as an article for the CHS *Bulletin*, or to present a program at a CHS meeting.

Applications should include the following:

1. Statement of the objectives of the proposal.
2. Description of materials and methods.
3. Complete budget, not to exceed \$500.
4. Brief resumé of the applicant, if an individual. If the applicant is an organization, background information on that organization should be included.
5. A completion date for the project.

Applications must be typed, double spaced, and submitted in duplicate. Applications should be kept brief and simple, and proposals longer than three to five pages are discouraged. All applications must be received by 1 May 1995, and awards will be announced by 1 June 1995.

It is the goal of the Grants Committee to award grants to a variety of applicants; enthusiastic amateurs will receive equal consideration with professional herpetologists and graduate students. Topics including Illinois herpetology, captive husbandry and propagation, and those which might translate into quality CHS *Bulletin* articles or monthly meeting programs are favored, though not requisite.

Submit applications or questions to: CHS Herpetological Grants, Chicago Herpetological Society, 2001 N. Clark Street, Chicago, IL 60614. Or contact Anthony J. Rattin, Grants Committee Chair, at (708) 937-7944.

MINNESOTA'S AMPHIBIANS AND REPTILES: A SYMPOSIUM ON THEIR CONSERVATION AND STATUS

On May 5–6 a symposium will take place in Minneapolis on the conservation and status of Minnesota's herpetofauna. The co-sponsors are the Minnesota Herpetological Society, the Bell Museum of Natural History, the Minnesota Zoological Society, the Minnesota DNR Nongame Wildlife Program and the U.S. Forest Service North Central Experimental Station. On Friday evening at the St. Paul Student Center Theatre, University of Minnesota – Twin Cities Campus, Dr. J. Whitfield Gibbons will deliver the keynote address "Benign and Malignant: Reassessing Reptiles and Amphibians in the Environmental Age." During the days the program will be conducted at the Bell Museum Auditorium. Registration is \$10 (\$7 for members of MHS, Bell Museum or MZS). Mail registration by April 28 to: Minnesota Amphibian and Reptile Symposium, Bell Museum of Natural History, 10 Church Street SE, Minneapolis MN 55455. For more information contact John Moriarty, Hennepin Parks, 3800 County Road 24, Maple Plain MN 55359, (612) 476-4663 work, (612) 647-1334 home, (612) 476-1514 fax.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 29, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. **Don Moll**, of Southwest Missouri State University, will speak on "The Plight of the Pancake Tortoise in Tanzania." Since 1981, pancake tortoises have been exported in large numbers from Tanzania. Dr. Moll and others have studied the effects of commercial collecting on wild populations of this species and have reached some disturbing conclusions.

In April our speaker will be **Kevin Muchnick**, a private breeder from Kansas City. Kevin will share his expertise on the care and keeping of the world's longest species of lizard, the crocodile monitor, *Varanus salvator*.

At the **March** meeting the **CHS Shop** will feature audio tapes and CDs of frog calls. The spotlight will be on state and regional field guides at the **April** meeting. During both months, there will be special bargains on T-shirts.

We are required to use the entrance on the west side of the museum. We have permission to use the staff parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field. There is also free parking available in the lot to the north of the museum. The #146 CTA bus goes directly to the museum. Unfortunately, it does not operate after 9:00 P.M. However, after the program anyone needing a ride to a CTA stop will have no trouble finding one—just ask any board member.

Turtle Club

The Chicago Turtle Club will meet Sunday, March 26, 1:00–3:30 P.M., at the Emerson Park Field House, 1820 W. Granville Avenue, in Chicago.

APRIL 2 SALAMANDER SAFARI

The annual CHS salamander safari will begin at 9 A.M. on Sunday, April 2, 1994. CHS members are invited to gather at Camp Sagawau, 111th Street (Route 83) just east of Archer Avenue, in Palos Park. You are invited to observe (not collect) examples of the four local salamander species as they emerge from winter dormancy. Photography and handling will be permitted but all subjects must be returned to their point of origin. Bring snacks, waterproof boots, cameras and field guides to help you enjoy this chance to witness the earliest of local herp activity. If you have any questions or need directions, call Ron Humbert at (708) 620-7377.

DONATIONS TO THE JANUARY 25 RAFFLE

The following is a listing of those individuals and businesses who generously donated items for our monthly raffle at the January 25 meeting. The donated items are shown in parentheses.

Ghann's Cricket Farm (cricket gift certificate); Reptile News Press (*Guide to the Reptile Body*, *Starting Right* guide book, salamander mug); Tetra Terra fauna (ReptoMin); Valentine Equipment (Hova-bator); ZooMed (cage carpet); Rep-Cal (Rep-Cal); Advanced Vivarium Systems (*The General Care and Maintenance of Red-Tailed Boas*); Fancy Publications (subscription to *Reptiles*); Terrarium Art (rock cave); Ilene Sievert (butterworms); Russell Pearl ("fifteen chameleons" artist's proof); Compass Marketing (snake T-shirt); Rainbow mealworms (cricket gift certificate); Jack Schoenfelder (large fishbowl); Ralph Shepstone (turtle pin); Karen Furnweger (*Aquaticus* magazine); Brian Jones (water bowl, aquarium backdrop); Dave Northcott–Nature's Lens (red-eyed treefrog poster); Trooper Walsh (Komodo dragon photo); Tim and Kathy Matzke–Creature Comfort (tree and stand).

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